BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

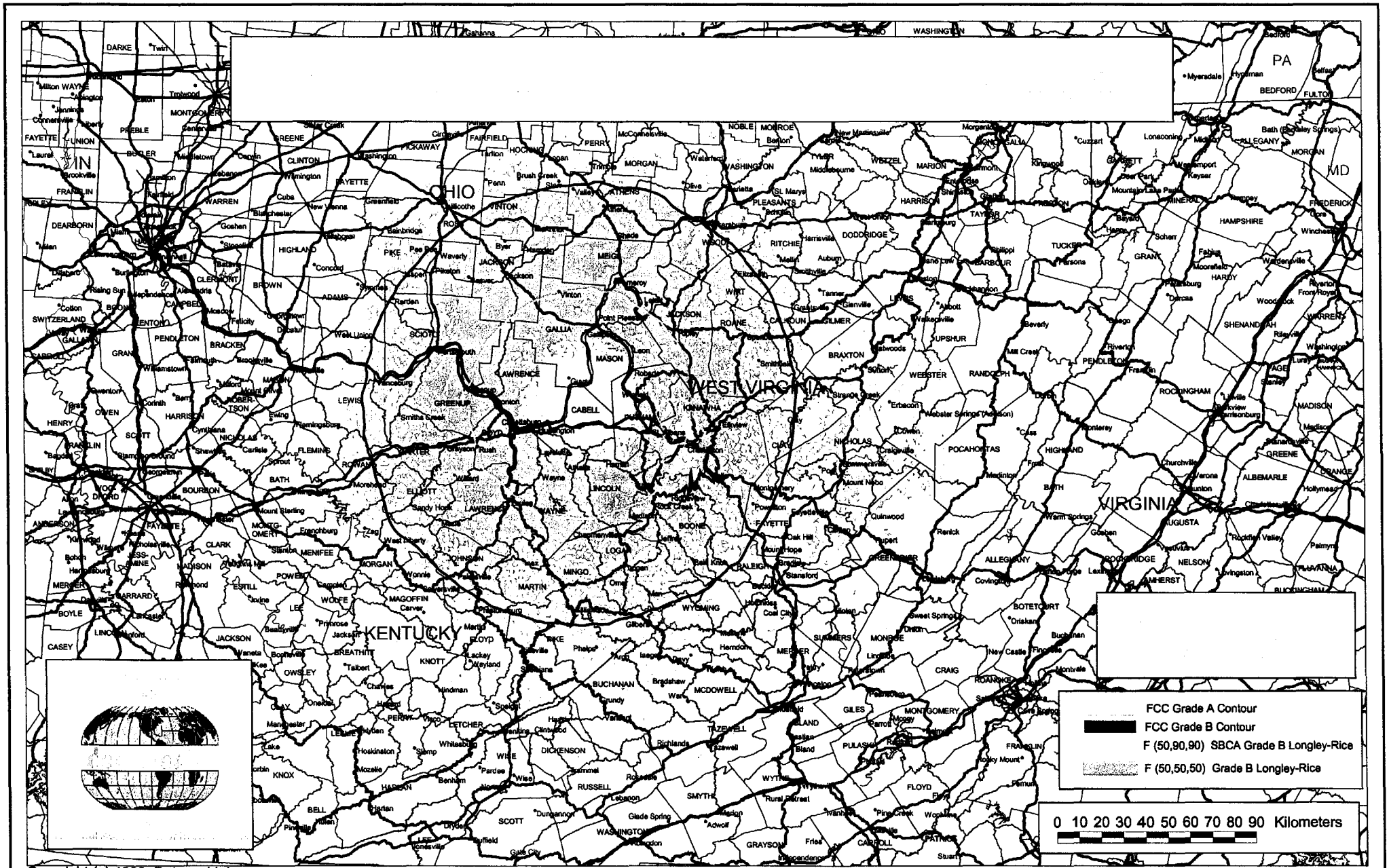
In the Matter of	)	
	)	
Satellite Delivery of Network Signals	)	CS Docket No. 98-201
to Unserved Households for	)	RM No. 9335
Purposes of the Satellite Home	)	RM No. 9345
Viewer Act	)	
	)	
Part 73 Definition and Measurement	)	
of Signals of Grade B Intensity	)	

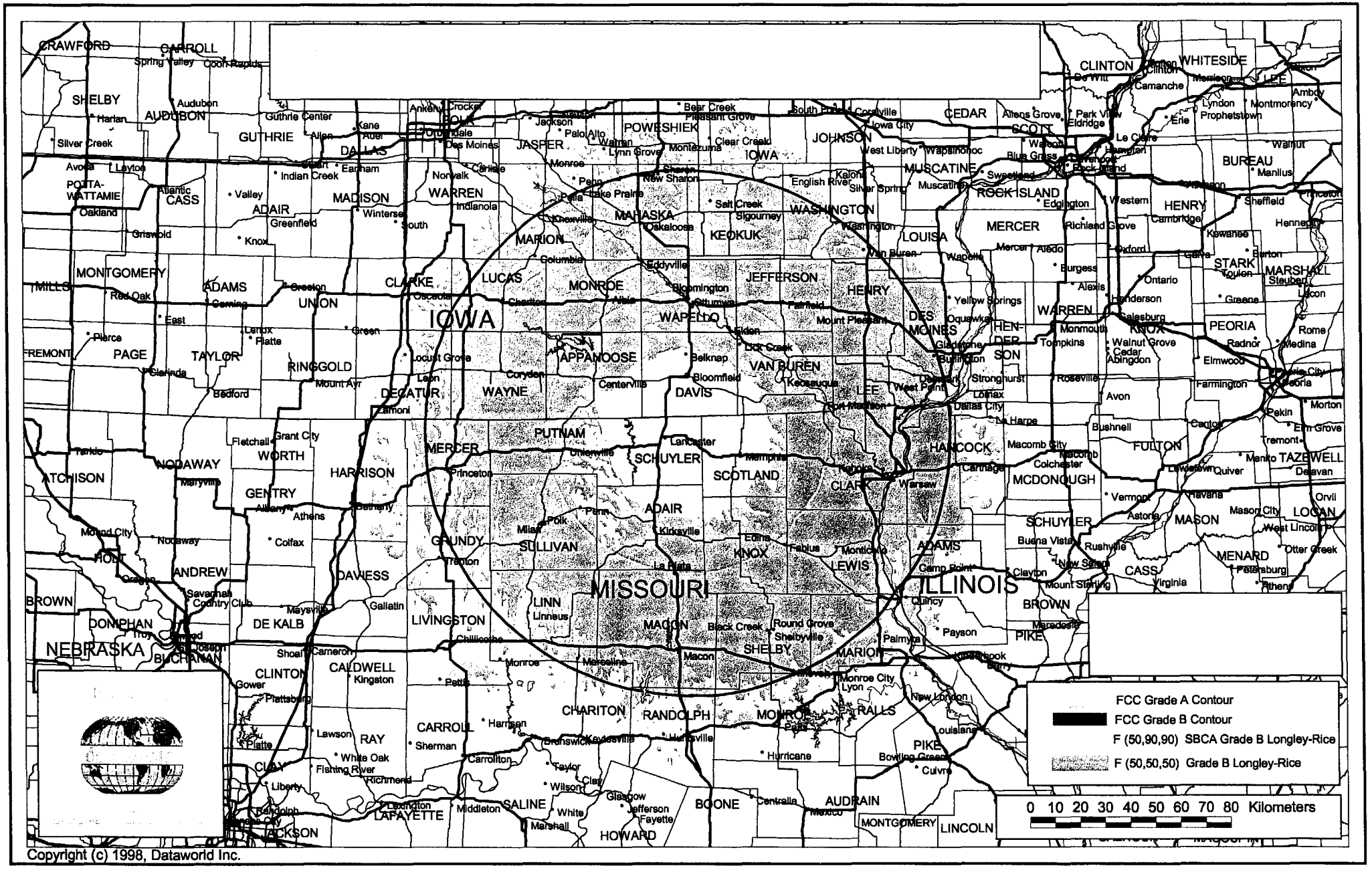
To: The Commission

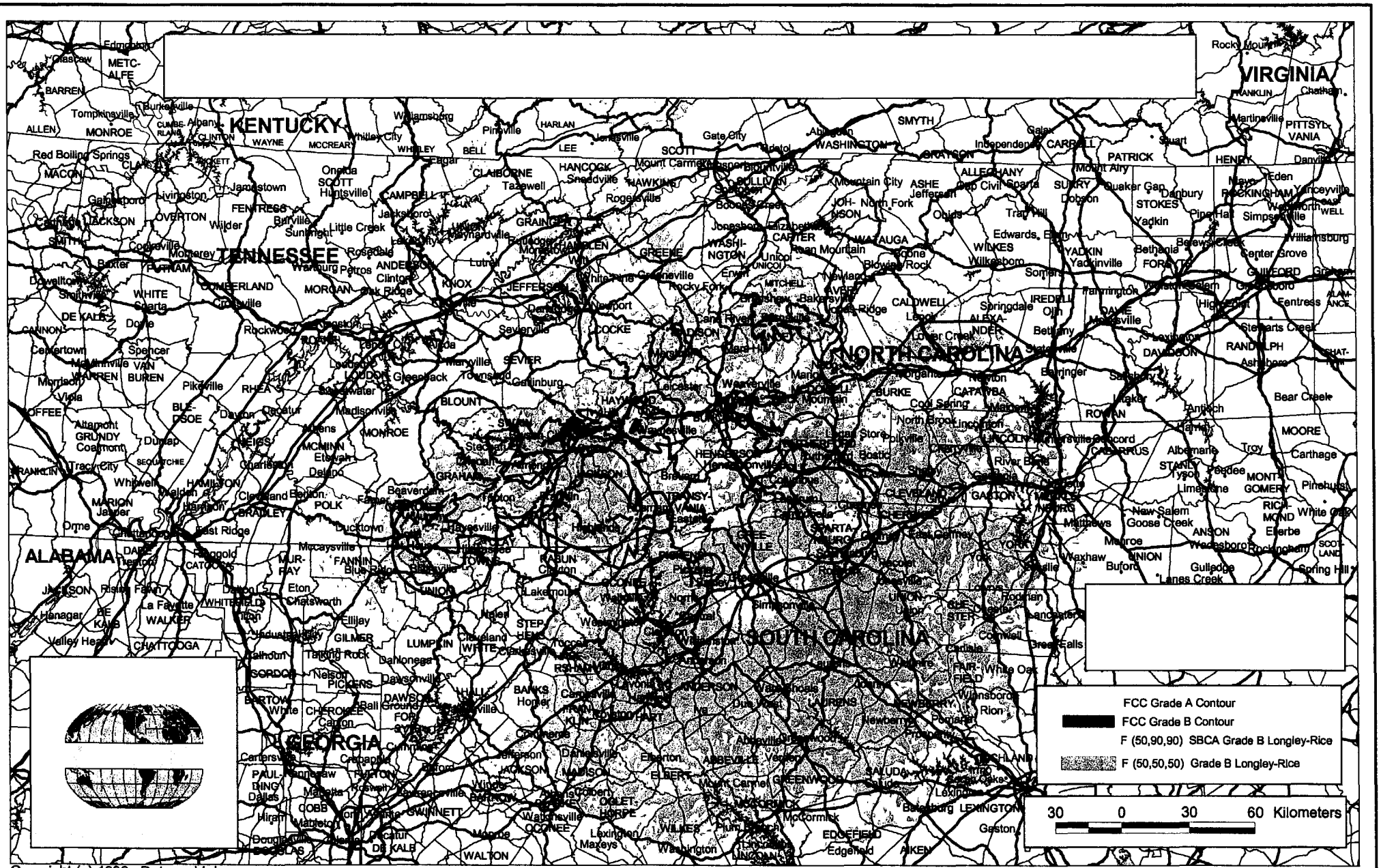
EXHIBITS TO REPLY COMMENTS OF
THE NATIONAL ASSOCIATION OF BROADCASTERS

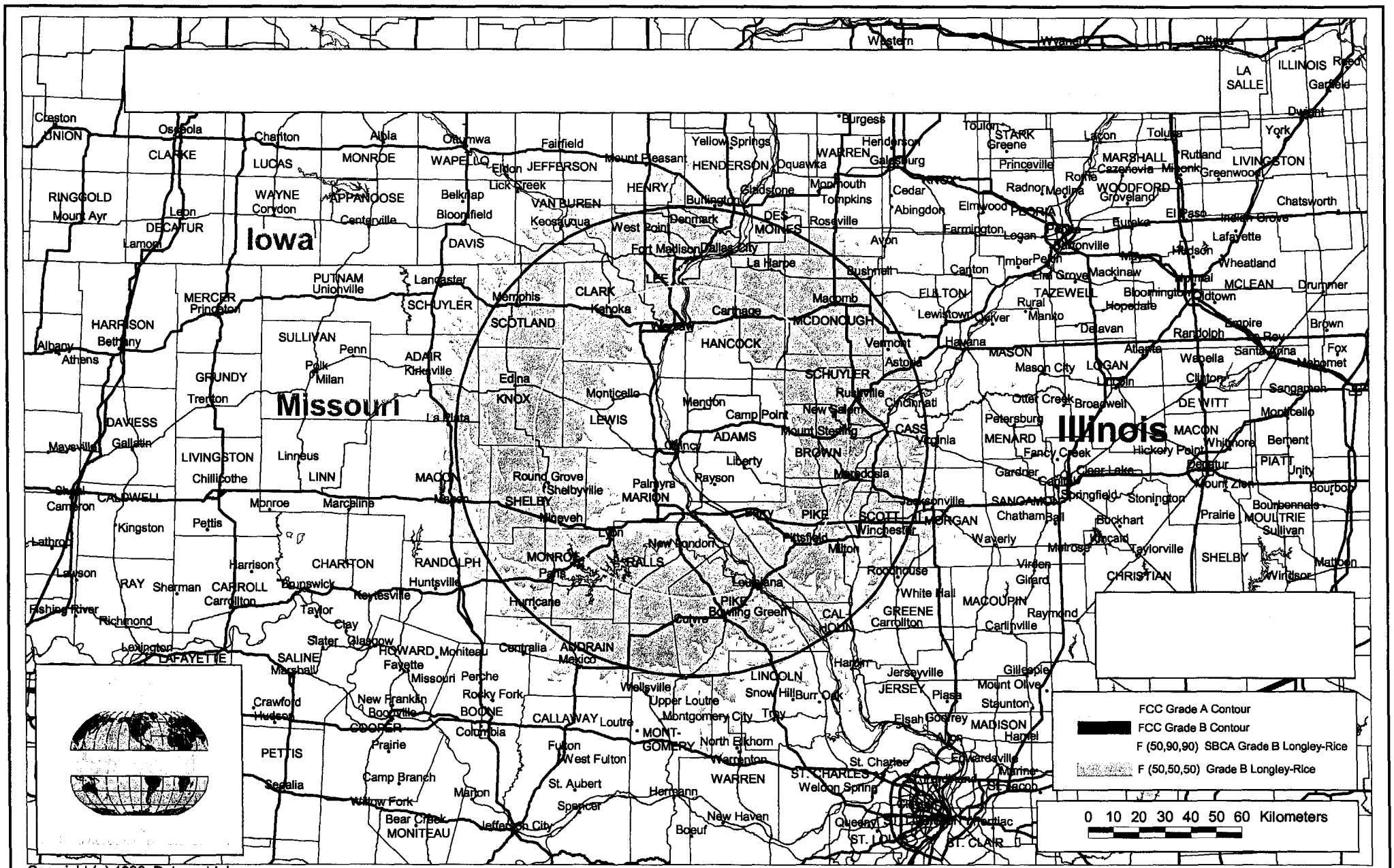
EXHIBITS TO REPLY COMMENTS OF THE NATIONAL ASSOCIATION OF BROADCASTERS

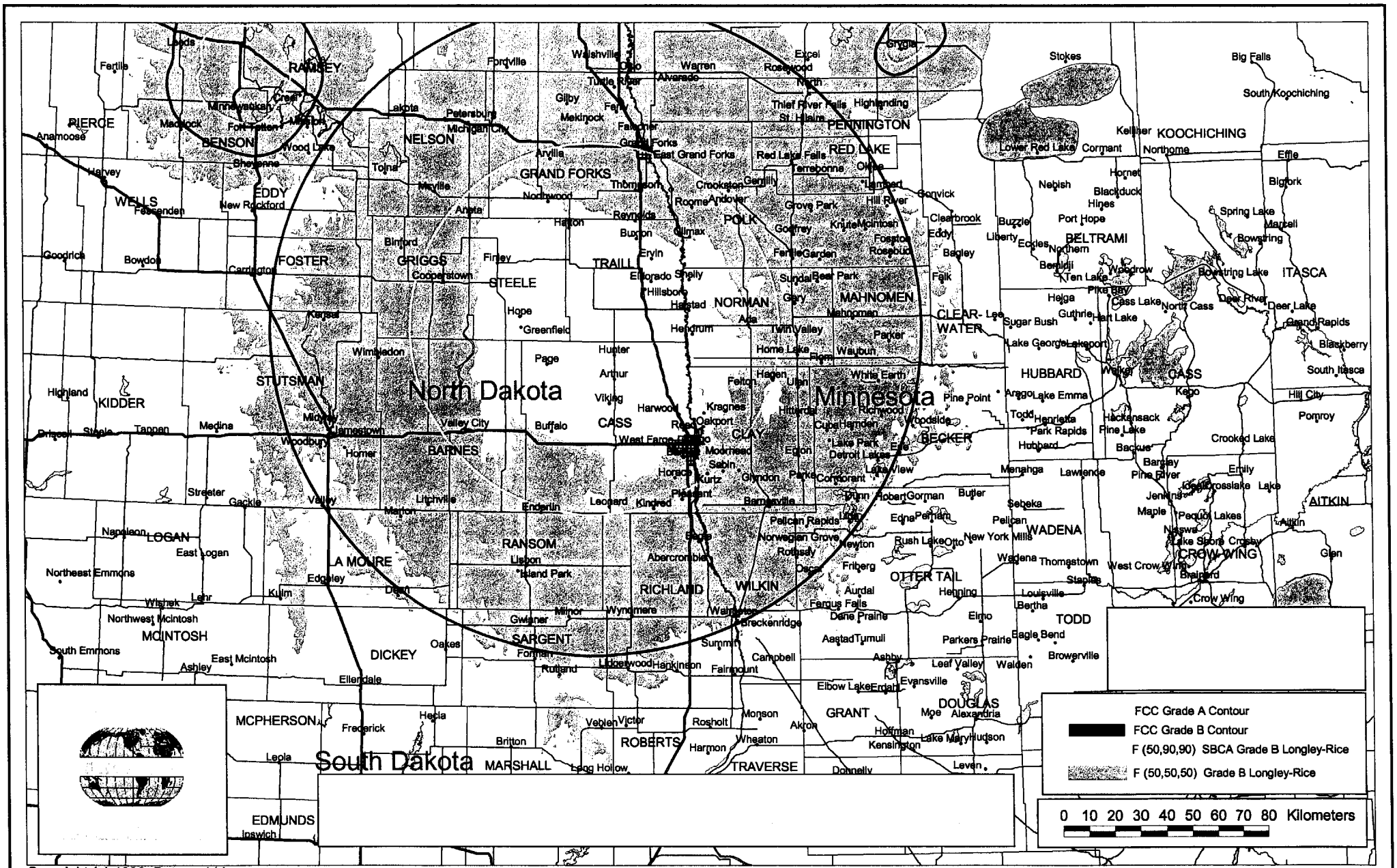
Exhibit Title	Tab
Longley-Rice Maps Showing Station Losses from Shift to Grade A Intensity Standard	A
Station WSAZ	1
Station KTVO	2
Station WLOS	3
Station KHQA	4
Station KXJB	5
Station WKRG	6
Station KGAN	7
Station KPVI	8
Station WISH	9
Station WDKY	10
Station WBKB	11
Station KXLF	12
Station KTVM	13
Station KWES	14
Station WOWK	15
Station WVAH	16
Reply Engineering Statement of Jules Cohen, P.E. (December 20, 1998)	B
Expert Report of Paul Bortz (May 28, 1998), prepared in CBS Inc. v. PrimeTime 24 Joint Venture, Civ. No. 96-3650-NESBITT (S.D.Fla.)	C

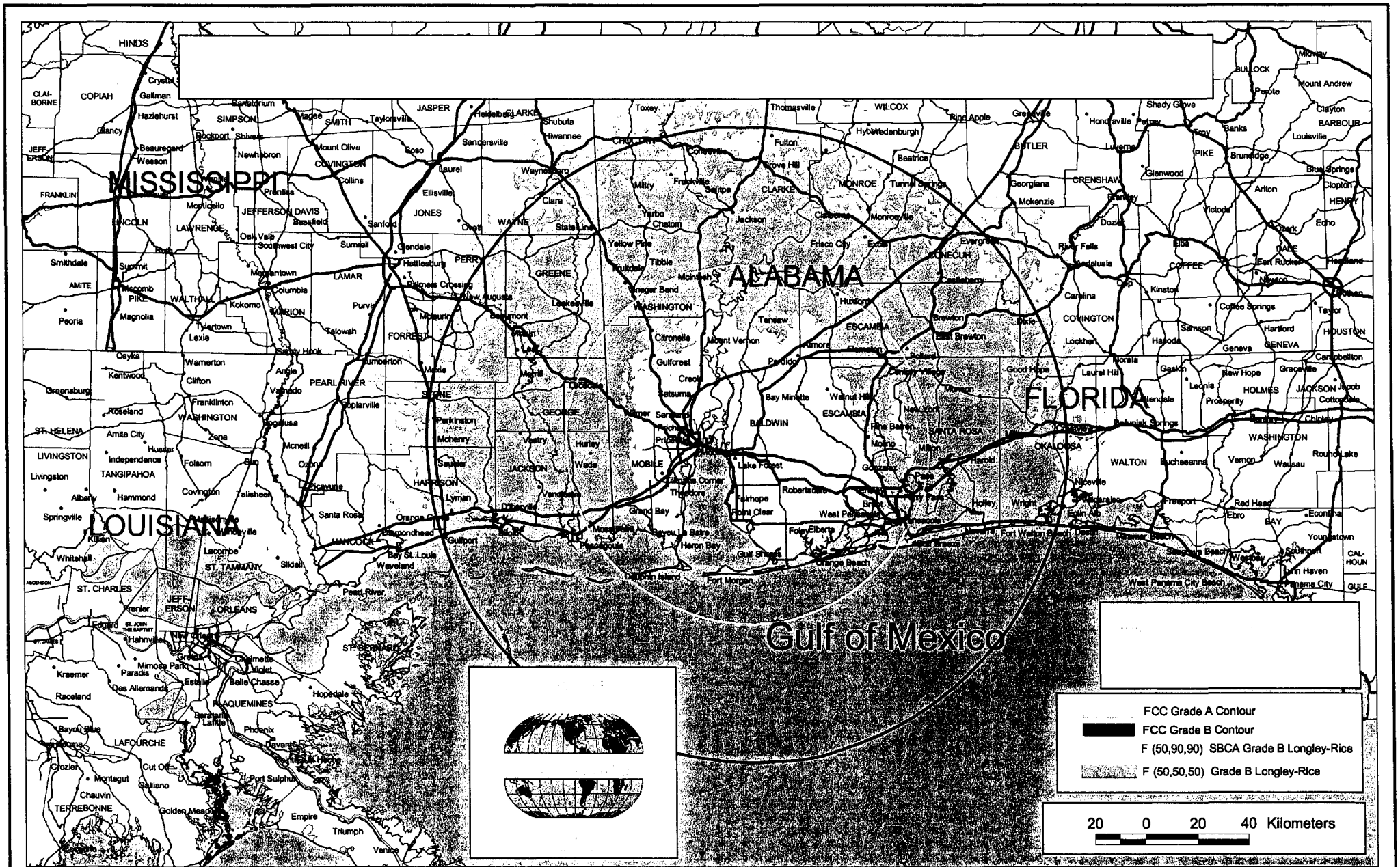

FCC Grade A Contour
FCC Grade B Contour
F (50,90,90) SBCA Grade B Longley-Rice
F (50,50,50) Grade B Longley-Rice
0 10 20 30 40 50 60 70 80 90 Kilometers
WEST VIRGINIA
KENTUCKY
VIRGINIA
OHIO
PA
MD
IN
Copyright (c) 1998, Dataworld, Inc.

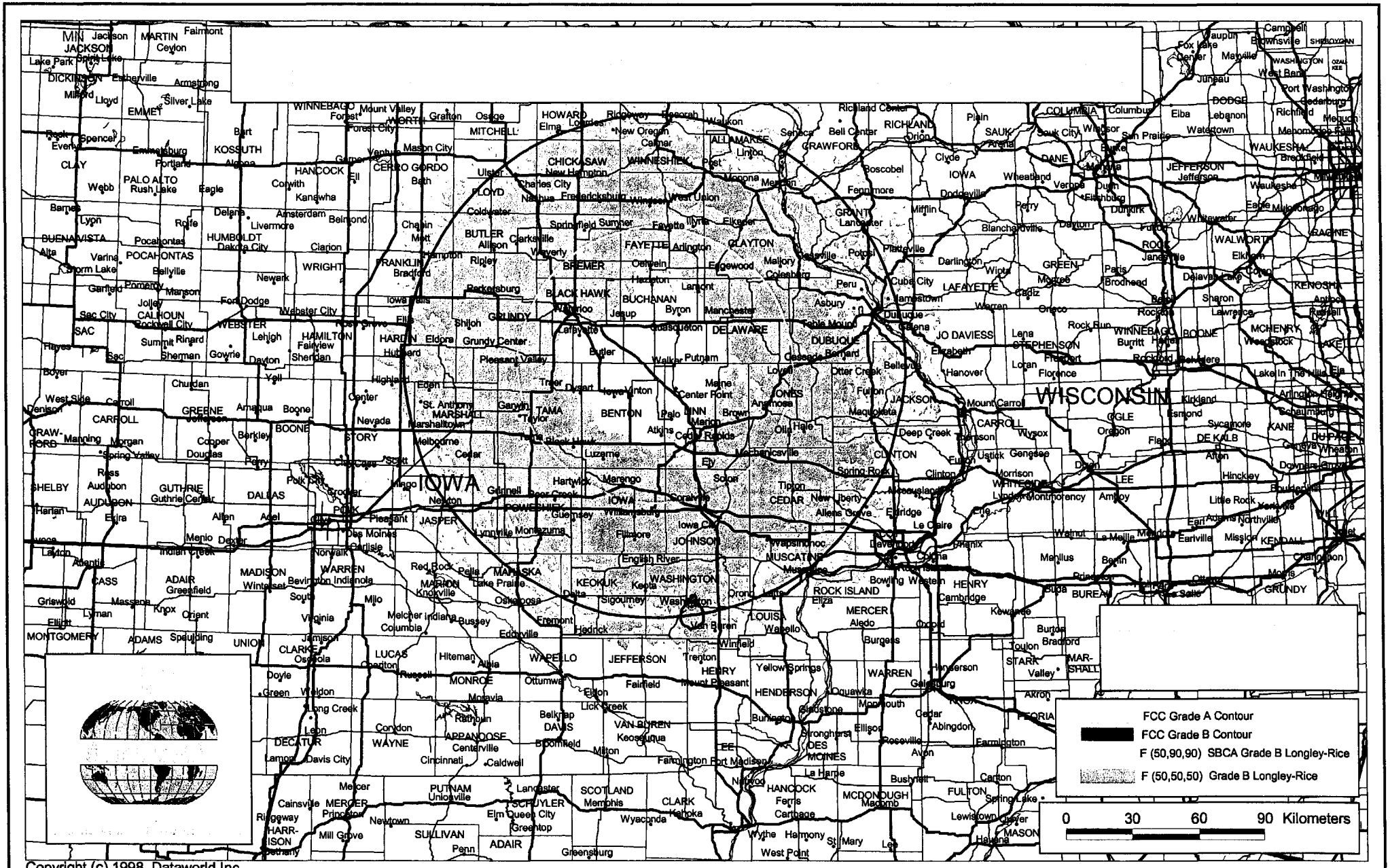

FCC Grade A Contour
FCC Grade B Contour
F (50,90,90) SBCA Grade B Longley-Rice
F (50,50,50) Grade B Longley-Rice
0 10 20 30 40 50 60 70 80 Kilometers
IOWA
MISSOURI
ILLINOIS
NEBRASKA
CRAWFORD
CARROLL
SHELBY
AUDUBON
GUTHRIE
DALLAS
POLK
JASPER
POWESHIEK
JOHNSON
CEDAR
CLINTON
WHITESIDE
SCOTT
MUSCATINE
BUREAU
HENRY
MERCER
ROCK ISLAND
POTTA-WATTAMIE
CASS
ADAIR
MADISON
WARREN
MARION
MAHASKA
KEOKUK
WASHINGTON
LOUISA
MONTGOMERY
ADAMS
UNION
CLARKE
LUCAS
MONROE
JEFFERSON
HENRY
WAPELLO
DES MOINES
WARREN
MILLS
PAGE
TAYLOR
RINGGOLD
DECATUR
WAYNE
APPANOOSE
VAN BUREN
DAVIS
LEE
HENDERSON
KNOX
PEORIA
MARSHALL
STARK
FREMONT
PUTNAM
HANCOCK
FULTON
TAZEWELL
MCDONOUGH
MERCER
SCHUYLER
SCOTLAND
CLARK
HARRISON
NODAWAY
WORTH
ATCHISON
GENTRY
ADAIR
KNOX
LEWIS
SCHUYLER
MASON
LOGAN
MENARD
GRUNDY
SULLIVAN
ADAMS
CASS
HOLT
ANDREW
DAVIESS
LINN
MACON
SHELBY
MARION
PIKE
BROWN
DE KALB
LIVINGSTON
DONIPHAN
BUCHANAN
CALDWELL
CLINTON
CARROLL
CHARITON
RANDOLPH
MONROE
RALLS
RAY
CLAY
LAFAYETTE
SALINE
BOONE
AUDRAIN
LINCOLN
JACKSON
HOWARD
Copyright (c) 1998, Dataworld Inc.

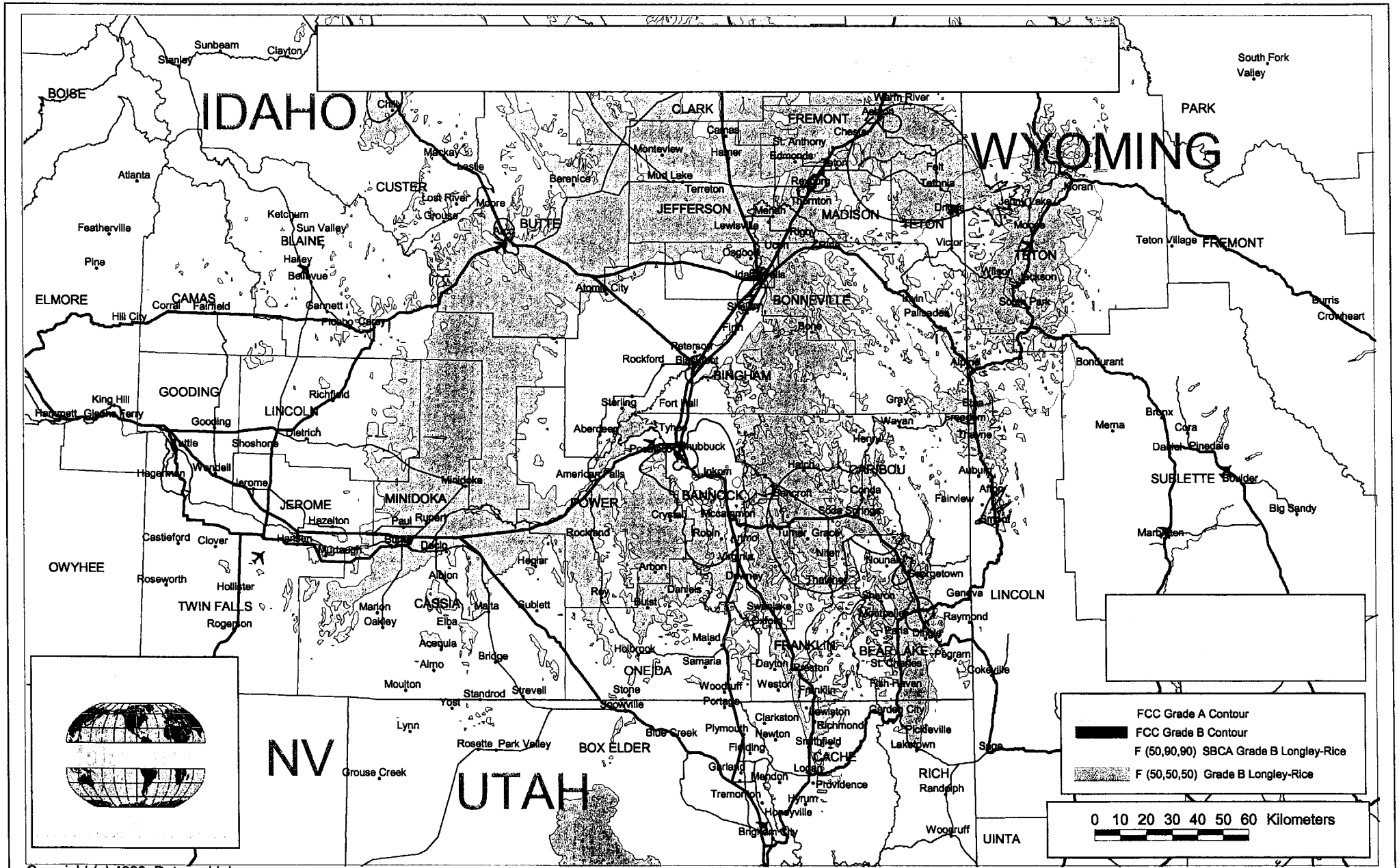


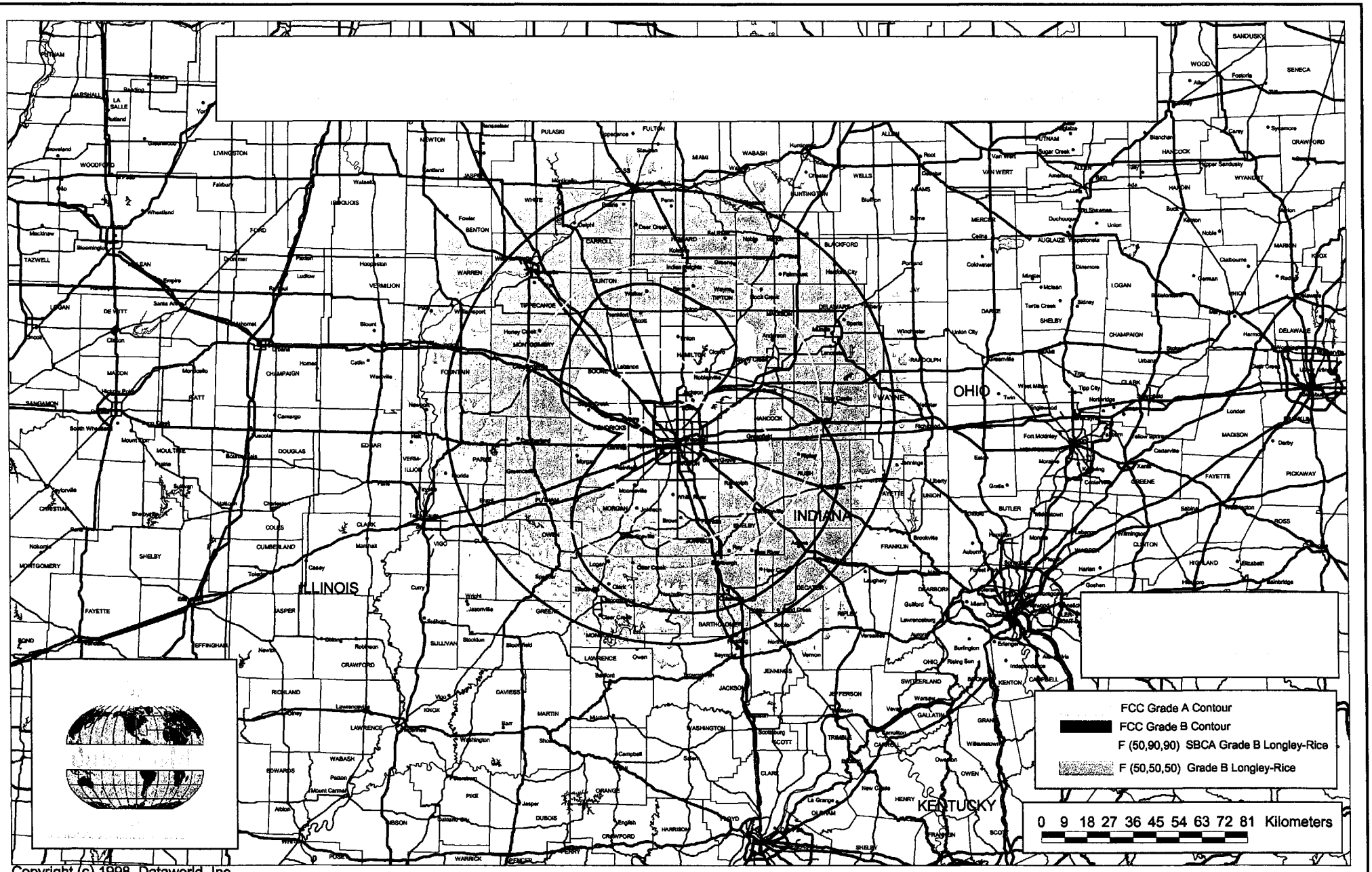

Iowa
Missouri
Illinois
FCC Grade A Contour
FCC Grade B Contour
F (50,90,90) SBCA Grade B Longley-Rice
F (50,50,50) Grade B Longley-Rice
0 10 20 30 40 50 60 Kilometers
Copyright (c) 1998, Dataworld, Inc.

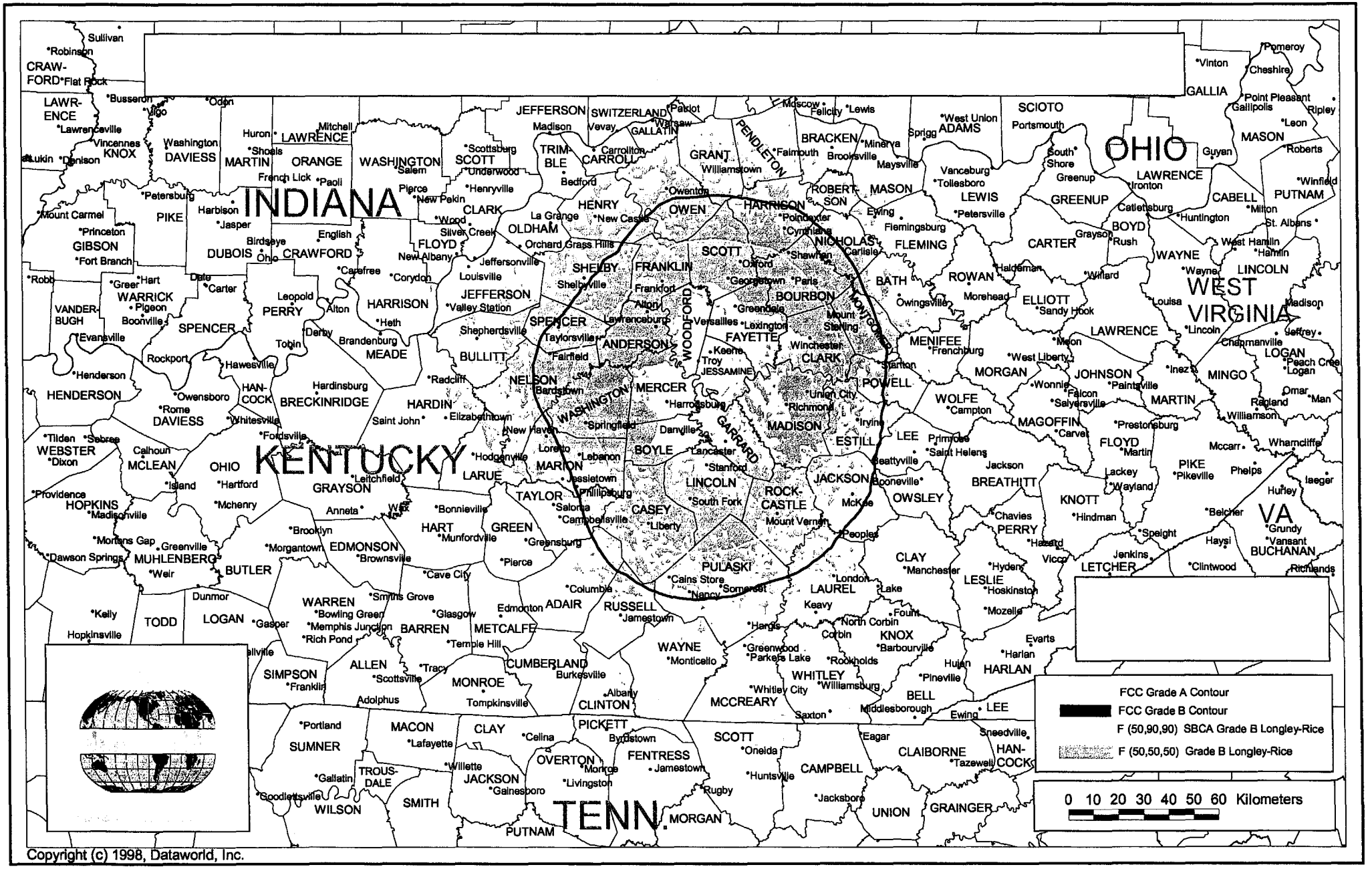


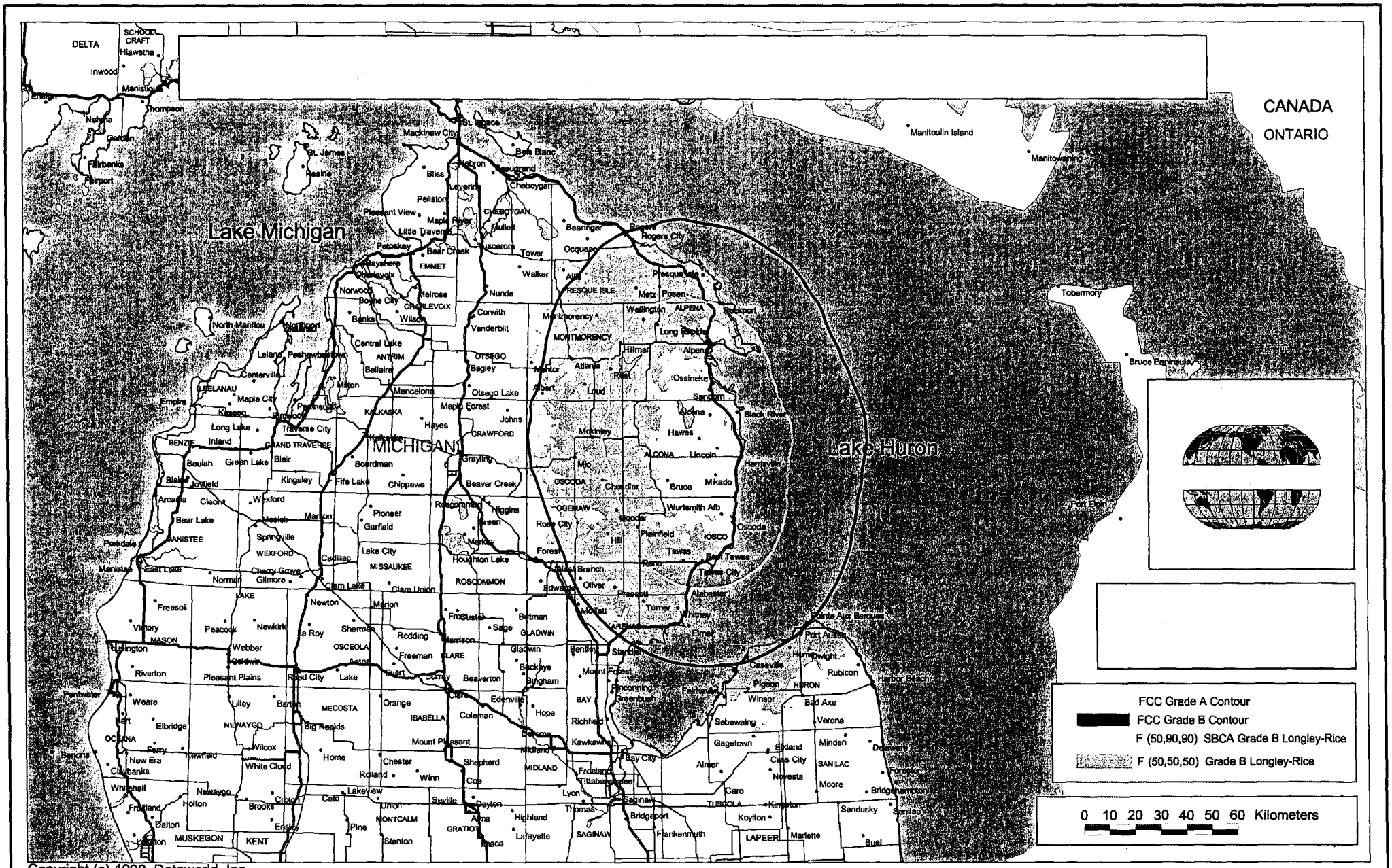


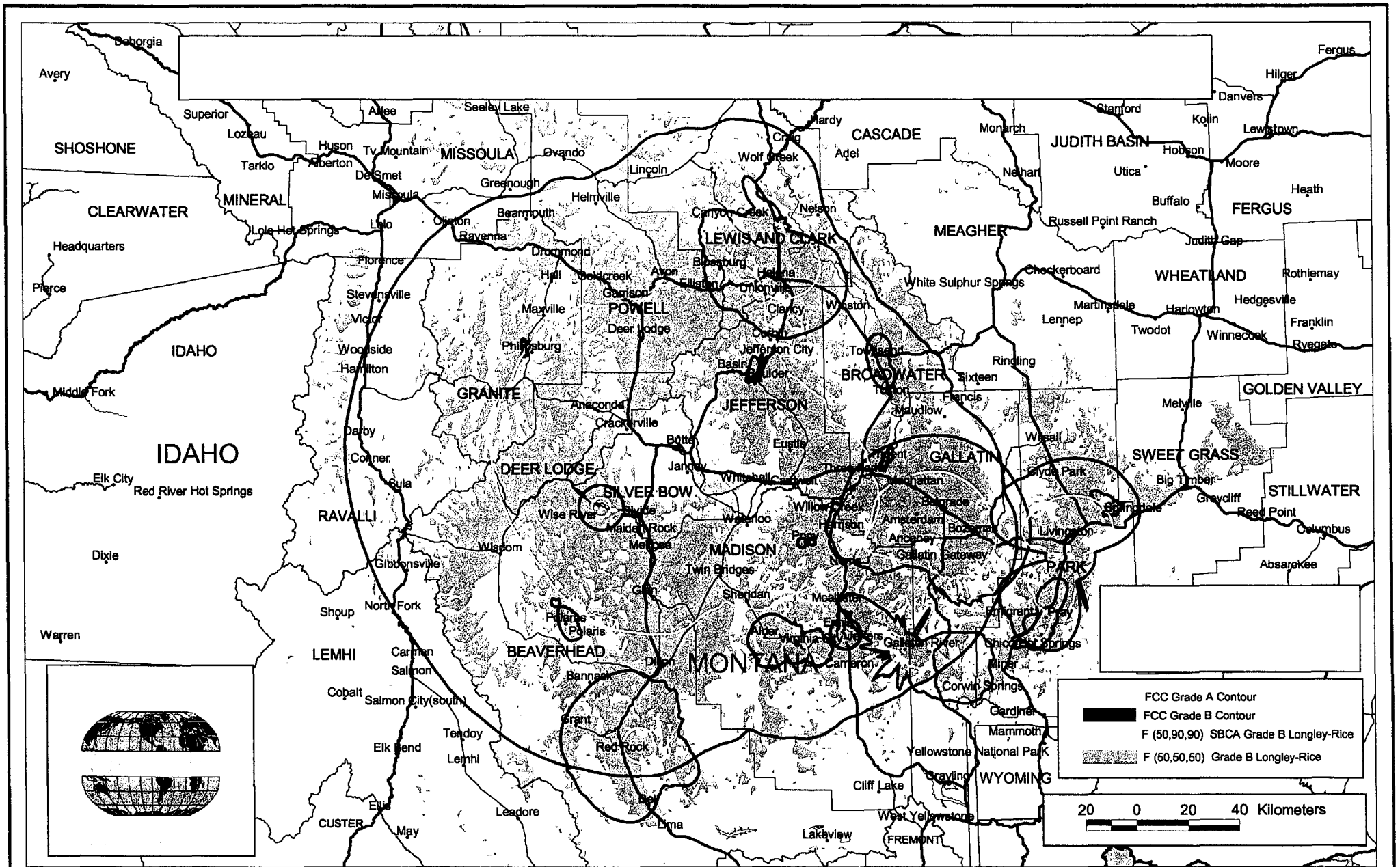


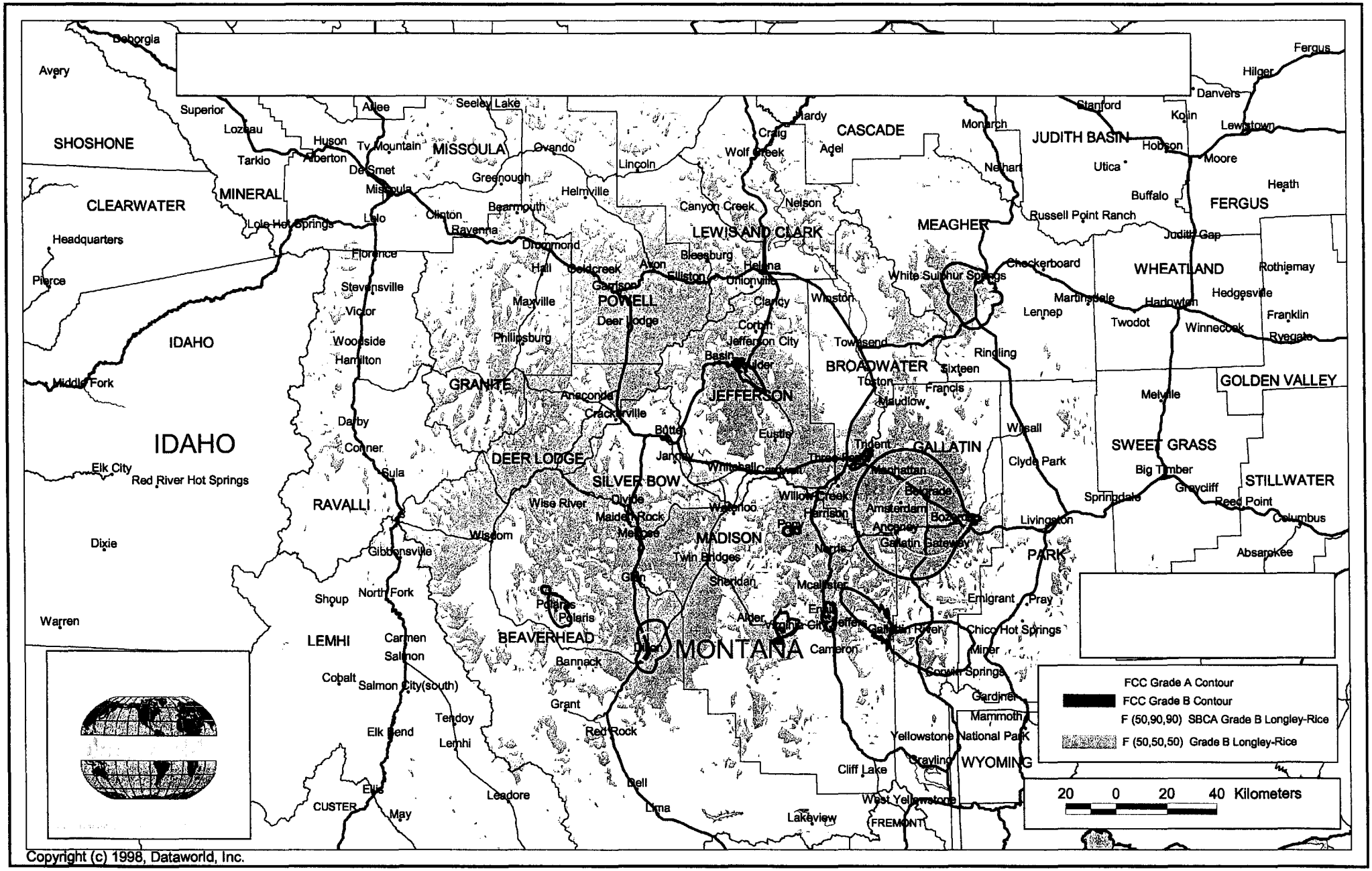


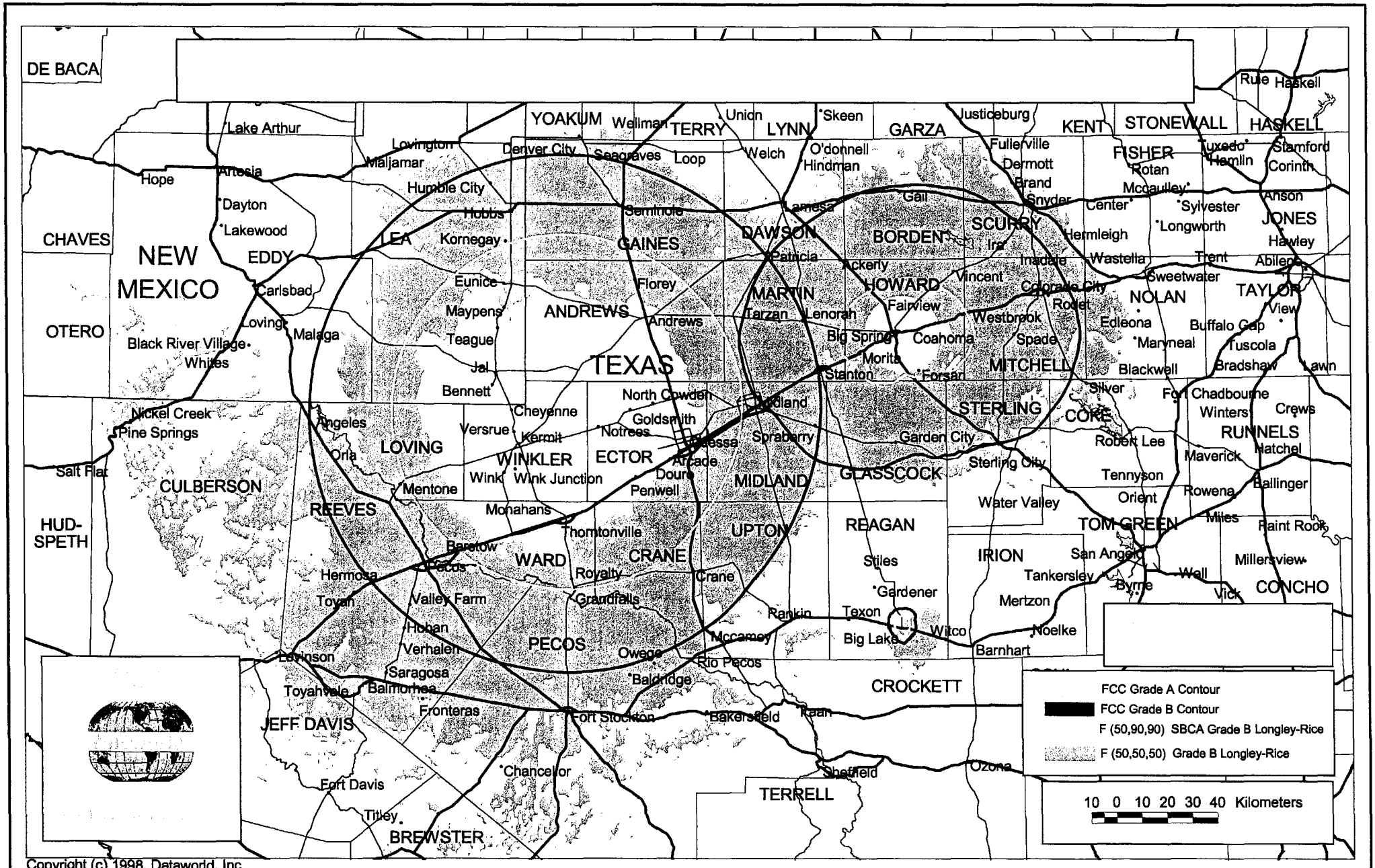


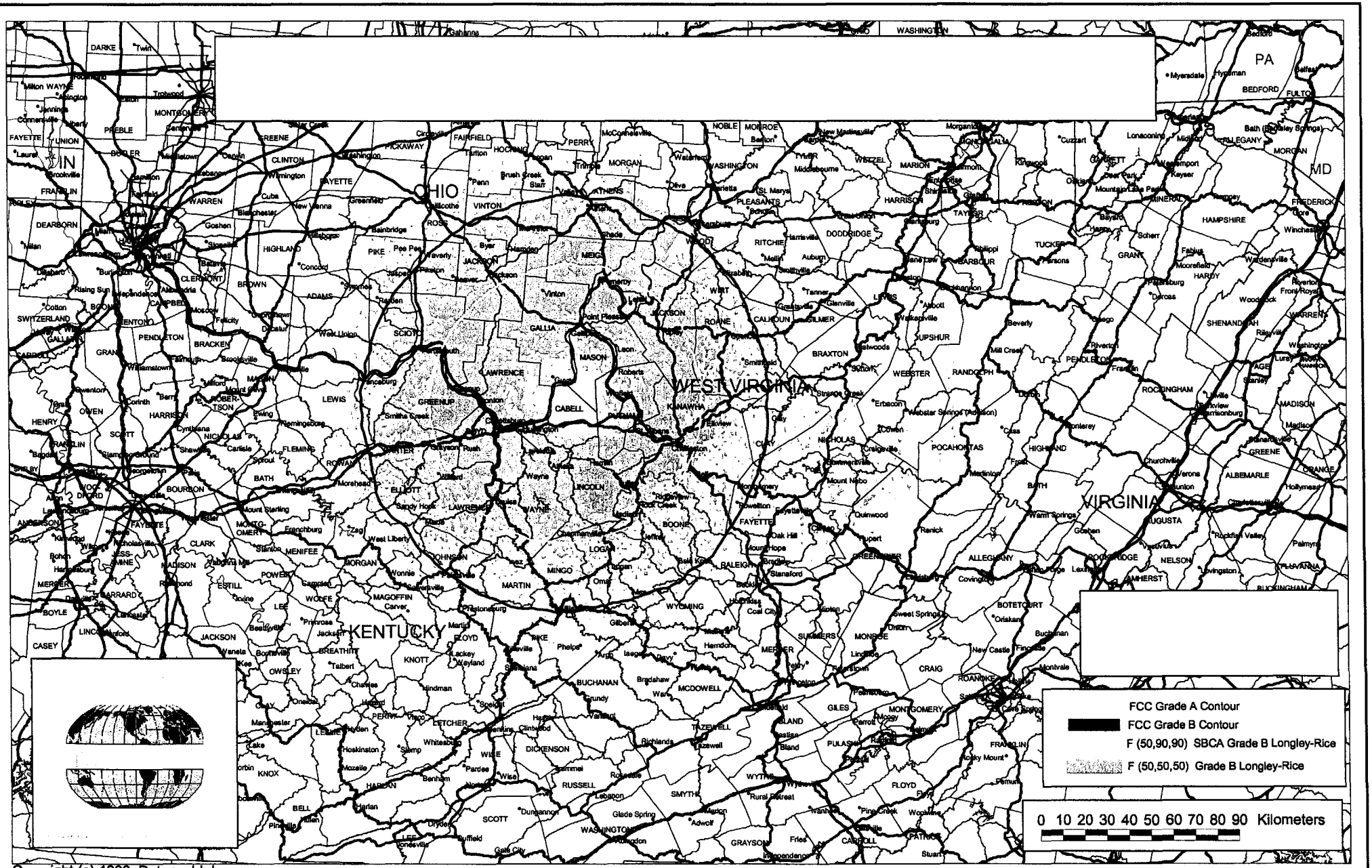

INDIANA
OHIO
KENTUCKY
WEST VIRGINIA
VA
TENN.
FCC Grade A Contour
FCC Grade B Contour
F (50,90,90) SBCA Grade B Longley-Rice
F (50,50,50) Grade B Longley-Rice
0 10 20 30 40 50 60 Kilometers
Copyright (c) 1998, Dataworld, Inc.

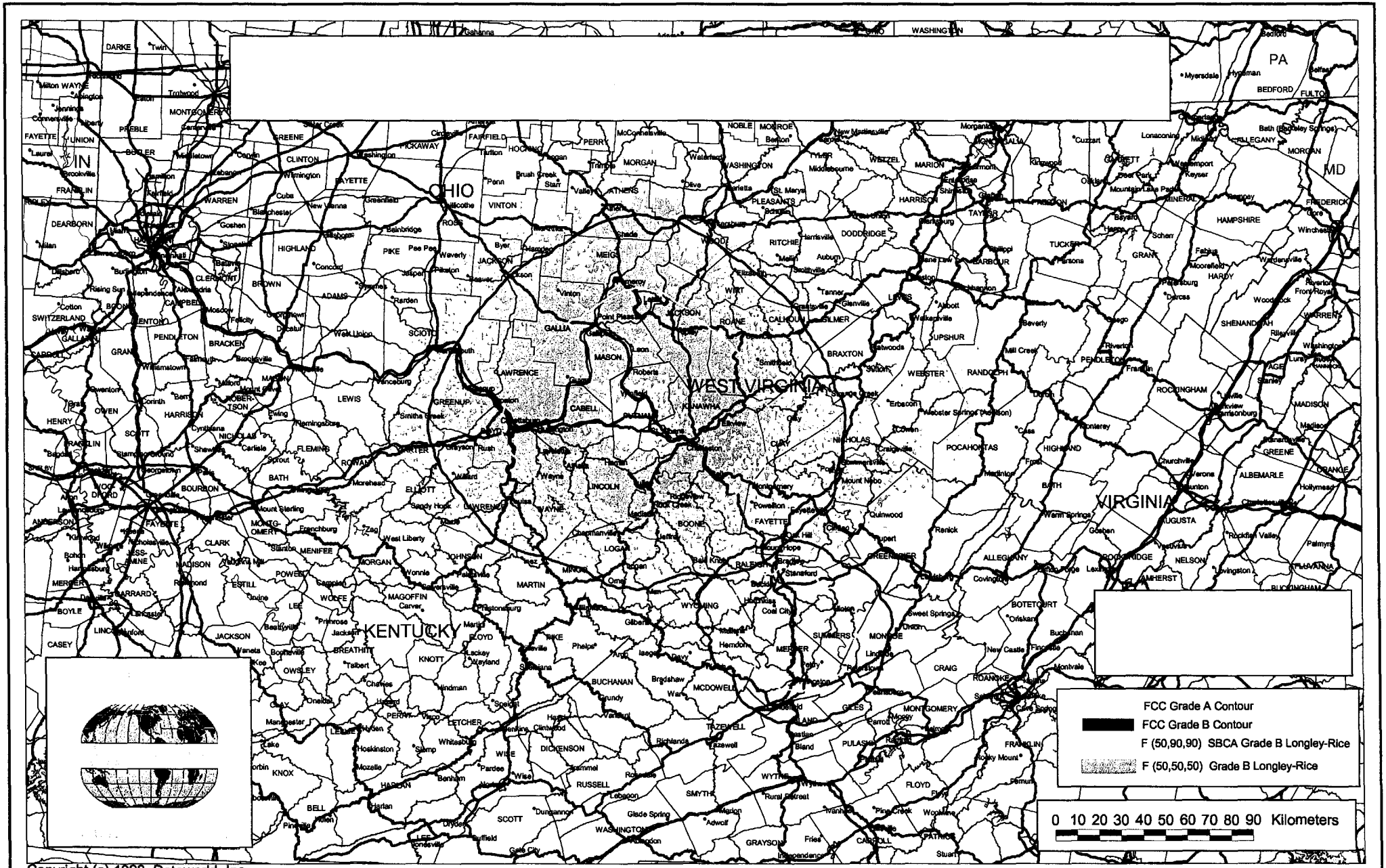









FCC Grade A Contour
FCC Grade B Contour
F (50,90,90) SBCA Grade B Longley-Rice
F (50,50,50) Grade B Longley-Rice
0 10 20 30 40 50 60 70 80 90 Kilometers
WEST VIRGINIA
KENTUCKY
VIRGINIA
OHIO
PA
MD
Copyright (c) 1998, Dataworld, Inc.


FCC Grade A Contour
FCC Grade B Contour
F (50,90,90) SBCA Grade B Longley-Rice
F (50,50,50) Grade B Longley-Rice
0 10 20 30 40 50 60 70 80 90 Kilometers
OHIO
WEST VIRGINIA
KENTUCKY
VIRGINIA
PA
MD
IN
Copyright (c) 1998, Dataworld, Inc.

B

Jules Cohen, P.E.
Consulting Engineer

ORIGINAL

ENGINEERING STATEMENT
IN SUPPORT OF REPLY COMMENTS
CS DOCKET NO. 98-201

1. This engineering statement has been prepared on behalf of the National Association of Broadcasters in support of reply comments relative to the Notice of Proposed Rule Making in the matter of Satellite Delivery of Network Signals to Unserved Households for Purposes of the Satellite Home Viewer Act; Part 73 Definition and Measurement of Signals of Grade B Intensity, CS Docket No. 98-201. As in the December 10, 1998, Engineering Statement by the undersigned, this engineering statement is divided into three parts: Definition of "Grade B Intensity," Predictions of Signal Intensity, and Measurement Methods.

Definition of "Grade B Intensity"

2. Despite the reaffirmation by the Commission of Grade B field intensity[1] as specified in Section 73.683 of the rules, only ten months ago[2] as a guide to viewers receiving NTSC analog service, the Satellite Broadcasting and Communications Association ("SBCA") would have the Commission define Grade B intensity as 70.75 dBμ for low VHF,

[1] Although the IEEE Standard Dictionary of Electrical and Electronic Terms suggests that "field intensity" is "deprecated" and prefers the term "field strength," "field intensity" will be used herein since that is the term employed in the SHVA.

[2] Memorandum Opinion and Order on Reconsideration of the Sixth Report and Order; MM Docket No. 87-268; FCC 98-24; Adopted February 17, 1998.

76.5 dBμ for high VHF, and 92.75 dBμ for UHF.[3] The source of those suggested values is the Engineering Statement[4] accompanying the SBCA Comments. Planning factors yielding the levels specified are, in some instances, inappropriately high.

3. The receiver noise figures applied by SBCA are 12/12/14 dB for low VHF, high VHF and UHF respectively. The 1977 Kalagian study[5] specified 6 dB for low VHF and 7 dB for High VHF based on then available receiver information. (Kalagian did not include UHF in his study.) In 1980, the UHF Comparability Task Force specified a receiver noise figure of 12 dB for the UHF band[6]. Even that figure for the UHF is too high as a current planning factor. The UHF Comparability Task Force found that the overall average UHF noise figure for 200 television receiving models was 9.03 dB[7]. In 1998, receivers are likely

---

[3] SBCA Comments, page 13.

[4] B.F. Dawson and D.J. Pinion, Technical Issues and Definitions Relative to the Satellite Home Viewer Act in Response to Notice of Proposed Rule Making in the Matter of Satellite Delivery of Network Signals to Unserved Households for Purposes of the Satellite Home Viewer Act, CS Docket No. 98-201; Prepared for Satellite Broadcasting and Communications Association; 12/98; Appendix 2, high range of values for "Recommended Planning Factors."

[5] G.S. Kalagian; A Review of the Technical Planning Factors for VHF Television Service; Research and Standards Division, Office of Chief Engineer; FCC/OET RS 77-01; March 1, 1977.

[6] Comparability for UHF Television; Final Report of the UHF Comparability Task Force, Office of Plans and Policy, Federal Communications Commission; September 1980; Table B-2.

[7] *Id.* p. 89, n.11.

better than in 1980. Appropriate noise figures for current planning factors based on the best known information at this time would be 6/7/9 dB, equal to or lower than the "low" recommended planning factors from the SBCA Engineering Statement.

4. SBCA would require a signal-to-noise ratio of 43 dB as a planning factor. But the SBCA Engineering Statement specifies that 34, or perhaps 36 dB, is the appropriate signal-to-noise ratio and bases that conclusion on FCC Report TRR 5.1.2 and on the Cable Television Technical and Operational Requirements. (7 FCC Rcd. 2021, ¶ 38) Use of 43 dB as the required signal-to-noise ratio would impose an increase in picture grade from "acceptable" to "fine," a standard that is irrelevant in the present context. The Commission has noted: "Grade B represents the field strength of a signal 30 feet above ground that is strong enough, in the absence of man-made noise or interference from other stations, to provide a television picture that the median observer would classify as 'acceptable' using a receiving installation (antenna, transmission line and receiver) typical of outlying or near-fringe areas." NPRM ¶ 4.

5. Receiver antenna gain that the SBCA would employ as a planning factor is 2.25/6.5/5.25 dB for low VHF, high VHF, and UHF, respectively. Such antenna gains are far off the mark for antennas "typical of outlying or near-fringe areas." In outlying or near-fringe areas, a high gain receiving antenna is called for, and normally used. Perusal of current catalogs of the major receiving antenna suppliers for all-band antennas illustrates

how far off these numbers are. Radio Shack Model 15-2157 has gains of 6.2/8.7/11.0 dB. A smaller Radio Shack antenna, Model 15-2156, has gains of 5.9/8.2/9.6 dB. The Channel Master Model 1160 antenna has average gains of 5.8/10.1/9.0 dB. The Channel Master Model 1161 has average gains of 5.0/9.6/9.5 dB. The Winegard Model DS-7150 has average gains of 5.8/9.72/11.15 dB.

6. Based on the foregoing, reasonable gain assumptions would be at least 5/9/10 dB for low VHF, high VHF and UHF, respectively.

7. SBCA would employ transmission line losses of 5/6/9 dB as planning factors for low VHF, high VHF and UHF, respectively. Those numbers represent a 3 dB increase over the "low" figures (which are, themselves, too high) to accommodate a splitter. The introduction of a splitter is a wholly inappropriate consideration. If a householder, with an otherwise adequate signal to provide acceptable picture and sound chooses to make that picture and perhaps sound unacceptable by the employment of one or more splitters, the correct procedure would be to install an inexpensive line or antenna-mounted amplifier to overcome whatever loss is introduced by the splitter(s).

8. For some years, the preferred lead from antenna to receiver has been coaxial cable rather than twin lead. The use of coaxial cable avoids the changing attenuation from the dry to the wet condition, reduces the pick up of unwanted signals, and eliminates the signal loss produced by coupling to nearby metallic objects or surfaces. The 75-ohm coaxial

cable most used for downleads is RG-6. Over the low VHF band, the loss of 50 feet of RG-6 cable is from 0.7 to 0.95 dB for low VHF, 1.3 to 1.9 dB for high VHF, and 2.15 to 2.9 dB for UHF[8]. The appropriate line loss figures would be 1 dB for low VHF, 2 dB for high VHF and 3 dB for UHF.

9. At most then, Grade B signal strength would be 49/56/68 dBμ for low VHF, high VHF and UHF respectively. These figures are little different from the present 47/56/64 dBμ and would not justify a change from the established levels for Grade B, particularly since the Commission has so recently, as noted above, used the 47/56/64 dBμ criteria to define service for analog television. Furthermore, the use of an inexpensive amplifier, commonly used in outlying areas, easily increases the received signal if desired.

Predictions of Field Intensity

10. SBCA proposes the use of the Terrain Integrated Rough Earth Model (TIREM) for predictions of field intensity to determine the likelihood of compliance with the SHVA. Tirem is alleged to be more "conservative." Presumably the reference to TIREM being more conservative means erring on the side of UNDERestimating signal coverage as compared to Longley-Rice. Our data as described in paragraph 34 *et seq.* of my December 10 Engineering Statement, show that the Longley-Rice predictive model as currently employed is very accurate. No need exists for use of an alternative method that is expected

[8] Source: Winegard web page www.winegard.com/cable.html.

to underestimate field intensity predictions at the location of potential subscribers to a satellite program service. Such underestimating would improperly favor the satellite companies over the local network broadcasters. Use of the Longley-Rice method is supported by the Comments of Decisionmark Corp., a company with expertise "in creating computer-generated signal area maps to implement" the SHVA.

11. Just ten months ago, the Commission expressly rejected the use of TIREM: "We further note that other models, such as TIREM, are proprietary and can yield very different results depending on their implementation. Accordingly, we are reaffirming our decision to use the Longley-Rice model."[9]

12. PrimeTime 24 recognizes that the median Grade B field intensity is designed to provide signal intensity sufficient to provide acceptable picture quality 90 percent of the time. PrimeTime 24 therefore proposes that determinations of signal strength be based on factors of 50 percent for time and 95 percent for location and confidence.[10] The Comments of the Electronics Technicians Association International, Inc. provide an excellent opportunity to check the validity of the PrimeTime 24 proposal. "With a proper antenna system, B contour households can receive crystal clear pictures (without ghosting) on multiple channels. Putnam County, Indiana, B contour households receive eighteen excellent

---

[9] 13 FCC Rcd.7418, para. 180.

[10] Initial Comments of PrimeTime 24 Joint Venture in Response to Notice of Proposed Rule Making, December 11, 1998, p.19.

quality channels in stormy, cloudy, snowy, and clear weather." Page 15. To test the predictive method, Longley-Rice predictions were made based on two sets of assumptions.

13. Indianapolis station WRTV, channel 6, was studied. A Grade B analysis was made first with the normal FCC procedure using 50 percent assumptions for location variability, time variability and confidence, and the signal intensities specified in 47 C.F.R. § 73.683. Then, an analysis was undertaken using 50 percent for time variability, 90 percent for location variability and a 90 percent confidence factor. Grade B intensity was as proposed by SBCA: 70.8 dBμ for low VHF. The 1990 U.S. Census shows **10,981** households in Putnam County, Indiana. The FCC conventional Longley-Rice analysis showed that WRTV is predicted to provide a Grade B or better signal to **10,933** households in Putnam County. By contrast, using the SBCA/PrimeTime 24 proposals, WRTV is predicted to provide Grade B field intensity to only **31** households in Putnam County.

14. Experience with comparing conventional FCC Longley-Rice predictions with actual field strength measurements made in compliance with 47 C.F.R. § 73.686 at over 500 locations and the experience cited by the Electronics Technicians demonstrate the accuracy and usefulness of the Longley-Rice model with location and time variability, and confidence factor of 50 percent. (When used to predict field intensity at a specific location, such as the geocoded coordinates of a household address, location variability has no meaning. The prediction of field intensity is specific for the target location.)

Measurement Methods

15. Echostar Communications Corporation (page 11), and PrimeTime 24 Joint Venture (page 26, *et seq.*) in their comments advocate orienting the test antenna in whatever arbitrary direction the householder chooses, and not necessarily toward the station being measured. Such a procedure is contrary to the practice of every engineer competent to conduct signal strength measurements and to stated FCC policy. As noted in my Engineering Statement of December 10, 1998, the Commission only four months ago in upholding a decision by the Chief of the Cable Services Bureau, stated that orientation of the test antenna in the direction of maximum signal strength provides the most accurate measurement of that signal strength.[11] A senior engineer representing PrimeTime 24 in the matter of CBS Broadcasting, Inc. *et al.* v. PrimeTime 24 Joint Venture found it reasonable for a station "to expect homeowners to orient their antennas properly."

16. Echostar, DirectTV, Inc., SBCA, Superstar/Netlinks Group, LLC, and NRTC would all add splitters to the measurement line if the householder uses splitters. The presence or absence of splitters has no effect on the signal intensity existing at the antenna, the pertinent location for judging the eligibility of the household to receive distant network programming via satellite.

[11] FCC 98-201, August 21, 1998, ¶ 16.

17. PrimeTime 24 recommends that the householder's antenna and transmission line be employed for the measurement of signal intensity if the residence has a "working antenna." Page 28. But Richard Biby and Robert Culver, expert engineers retained by PrimeTime 24, provided sworn testimony in the Miami case to the effect that no knowledge of signal intensity at the antenna could be derived from measurements made at the receiving end of the householder's lead from the antenna. To derive signal intensity in the air at the antenna, one must know accurately the gain of the antenna for the channel of interest, the transmission line loss, whether the antenna, transmission line and receiving device are properly impedance matched, and the calibration reliability of the measuring instrument. From the antenna type, the gain may be available from manufacturer's data, but reliance on that gain presupposes that the antenna is in "new" condition and is oriented properly. Since much of the transmission line is likely not available for inspection, no conclusion can be reached as to line length, condition and whether installed properly or not.

18. SBCA, Echostar, DirectTV, PrimeTime 24 and NRTC all advocate the taking of ten readings at a single location near the household. If any one of the ten readings (Echostar), or more than one of the ten readings (SBCA *et al.*) falls below the Grade B level, the household is to be considered "eligible" under SHVA on the assumption that the signal needed for producing an acceptable picture must be available for at least 90 percent of the time. PrimeTime 24 had recognized correctly in the context of signal level prediction that

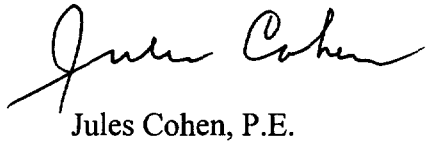
a median Grade B signal intensity level provides an acceptable picture 90 percent of the time. The measurement criterion is median, not the 90 percent of the time level.

19. The same group of satellite proponents would require measurements at a height above the roof of the house. Since the measurement cannot be made precisely at the location of where the outdoor antenna is, or where an outdoor antenna could be located, the precise height of the test antenna is not important. Better to standardize on heights of 20 or 30 feet, depending on the type of house involved so the technician doing the testing can have standardized equipment used in all instances.

20. I reiterate that an inexpensive measurement technique would involve the taking of a cluster of five measurements at neutrally and arbitrarily selected locations clear of nearby reflecting objects, as close to the house as feasible, with known equipment, and with prior notice given to the other side in a timely fashion. The middle of the five readings arranged in ascending or descending order is the median signal intensity that would determine the eligibility of the household under the provisions of the SHVA.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on December 20, 1998.



Jules Cohen, P.E.

C

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF FLORIDA

CBS Broadcasting Inc., et al., Plaintiffs, - v. PrimeTime 24 Joint Venture, Defendant.	CIV-No. 96-3650-NESBITT Magistrate Judge Johnson **CONFIDENTIAL -- CERTAIN PORTIONS SUBJECT TO PROTECTIVE ORDER** **REDACTED**

Expert Report of Paul Bortz

1. I am the President of Bortz Media & Sports Group, Inc. For many years, I have specialized in analyses of the television industry. Along with others at my firm, I provide consulting services to a wide variety of clients in the broadcasting, cable television, and professional sports businesses. Our clients over the past three years have included ABC, CBS, ESPN, Arts & Entertainment, the Disney Channel, TCI, Cox, Comcast, the National Basketball Association, and the National Hockey League. I have prepared many reports for clients relating to a wide variety of topics in the television industry. I have testified before subcommittees of both the U.S. House of Representatives and the U.S. Senate on television policy matters. I have also provided expert testimony both in federal court and before the Copyright Royalty Tribunal and a Copyright Arbitration Royalty Panel. (A copy of my c.v. is attached.)

2. I have a B.S. degree from Purdue University and an M.A. in Applied Mathematics from Harvard University. From 1969 to 1978, I was employed by, and from 1974 to 1978 served as the head of, the Industrial Economics Division of the University of Denver's Research Institute. In that capacity, I conducted or supervised a variety of applied economic research projects including telecommunications, technology innovation, and business planning. From 1978 to 1979, I served as Deputy Assistant Secretary of Commerce for Communications and Information, and administered the executive branch agency responsible for developing domestic and international communications policy. Since then, I have been continuously engaged in consulting activities relating to the television and sports businesses, first as a Managing Director of Browne, Bortz & Coddington, Inc., and since 1988 as President of my current firm.

3. I am being compensated at my normal rate of $425 per hour for my work in this matter. I have testified at deposition or at a hearing or trial during the past four years in the following matters: a cable distribution proceeding before a Copyright Royalty Distribution Panel, and in Chicago Professional Sports Limited Partnership v. National Basketball Association, 90 C 6247 (N.D. Ill.).

4. I have reviewed the Expert Report of Robert C. Springer III (dated April 15, 1998) and the Expert Report of James W. Dertouzos (dated April 16, 1998). The conclusions drawn by Mr. Springer and Dr. Dertouzos are inconsistent with the relevant data and with my many years of research and experience in the television industry.

The Reasons Viewers Subscribe to PrimeTime 24

5. Mr. Springer asserts that "the most likely explanation for a satellite dish owner to pay to subscribe to a distant network signal on PrimeTime 24 is that the quality of the dish owner's over-the-air reception of his or her local affiliate is unacceptable." Springer Report at 2. Mr. Springer also asserts that "[a] desire to time shift and/or to obtain out-of-market sports is not likely, in my opinion, to be a significant explanation for subscriptions to PrimeTime 24, even absent the restrictions imposed by the Satellite Home Viewer Act." Id. These observations are not credible.

6. Contrary to Mr. Springer's assertions, there are a variety of reasons, unrelated to inability to receive local stations, for subscribers to purchase PrimeTime 24. The reasons include:

a. Time-shifting: PrimeTime 24 has both East Coast and West Coast feeds. As a result, PrimeTime 24 subscribers have a range of options in viewing network programming that are not available to them if they watch their local stations. For example, PrimeTime 24 subscribers on the West Coast can watch network programs such as "Ally McBeal" (Fox), "Touched by an Angel" (CBS), "E.R." (NBC), and "Dharma & Greg" (ABC) three hours earlier by watching East Coast network stations. Similarly, PrimeTime 24 subscribers in the Mountain Time Zone (where I reside) can watch the David Letterman show at 9:30 p.m. local time (from WSEE-Erie, Pennsylvania, on PrimeTime 24), at 10:30 p.m. local time (from their local CBS station), or at 11:30 local time (from KPIX-San Francisco, on

PrimeTime 24). These types of time-shifting cannot be achieved through use of a videotape recorder: these subscribers can view network programming before it is shown on their local stations, leaving the local stations effectively in the posture of offering a "rerun" to their own local viewers. And the ability to see programs after they are broadcast locally -- without the inconvenience (and need for advance planning) of using a VCR -- is also valuable to viewers.

b. Access to out-of-town sports events: Network stations carried by PrimeTime 24 provide viewers with sports events that are not televised by their local stations. By retransmitting FoxNet, WNBC (New York City), and KNBC (Los Angeles) to viewers across the United States, for example, PrimeTime 24 has made available many NFL games that were not available to viewers from the broadcast stations in their local markets. With CBS's recent re-acquisition of rights to NFL football, PrimeTime 24 subscribers will shortly be able to view out-of-town NFL games from the two CBS stations (WSEE and KPIX) that PrimeTime 24 carries, as well as from FoxNet.[1/] When college sports are offered on a "regionalized" basis, access to PrimeTime 24 also offers out-of-town college games that are not available to viewers from their local stations.

c. Ability to receive network programming without use of an antenna. Although over-the-air antennas are not particularly costly, purchasing and installing an antenna does involve a degree of trouble and expense. And as cable television has become the most

---

1/ The ability to obtain out-of-town NFL games clearly has substantial appeal to viewers: the NFL sells a package of out-of-town NFL games to satellite dish owners called "NFL Sunday Ticket" at prices up to $159 per season for residential subscriptions.

popular method of obtaining television programming, many viewers have relatively little familiarity with rooftop antennas. (A satellite industry publication discussing this phenomenon is attached to this Report.) A subscription to PrimeTime 24 permits a viewer to watch ABC, CBS, Fox, and NBC programming without making any of these investments of time and money in over-the-air antennas. And even for dish households that retain access to local television stations -- through an over-the-air antenna or by cable -- a subscription to PrimeTime 24 permits a viewer to watch ABC, CBS, Fox, and NBC network programming "on the satellite," in the same channel lineup as nonbroadcast programming offered by CNN, ESPN, Nickelodeon, USA Network, HBO, and other channels.

d. Digital format. PrimeTime 24 subscribers to Direct Broadcast Satellite services such as DirecTV and Echostar enjoy the ability to receive network programming in a digital format, as opposed to the analog format in which television stations broadcast today. This advantage is likely to be especially attractive to videophiles, such as viewers with large-screen televisions.

7. Mr. Springer's statement that viewers will not pay for time-shifting or out-of-town sports events is inconsistent with PrimeTime 24's own advertising and promotional materials. These materials repeatedly emphasize the attractiveness of time-shifting and out-of-town sports events, as well as "superior picture clarity," as key selling points. None of the PrimeTime 24 advertising and promotional materials I have reviewed mention unavailability of local stations as a reason to subscribe to PrimeTime 24. Indeed, the only relevance of the

supposed unavailability of local stations is simply as a question that must be answered correctly in order to "qualify" for PrimeTime 24.

8. Mr. Springer's assertion that time-shifting and other benefits cannot explain PrimeTime 24 subscriptions is also contradicted by other public statements by PrimeTime 24. In a lawsuit pending in federal court in New York City, PrimeTime 24 itself has made the following assertions:

> "Satellite delivery of network television programming is capable of providing consumers with many advantages over conventional over-the-air broadcasts, including a crystal-clear image and stereo sound. Moreover, by allowing consumers to view network stations other than their local station, satellite delivery of network television programming can and does enhance consumer choice. The availability of a distant network television station can provide several distinct advantages. For example . . . the non-network programming (e.g., local sports, news, and weather) on the distant station may be particularly desirable, or the network programming on the distant station may occur at a more convenient time than that offered by the local network station."[2/]

2/ Complaint, ¶ 29, PrimeTime 24 Joint Venture v. National Broadcasting Company, Inc., 97 Civ. 3951 (S.D.N.Y. filed May 30, 1997). PrimeTime 24 also acknowledges that for satellite dish owners to be able to receive their local network stations, they must "make additional investments to receive network [signals] through either cable television or an antenna capable of receiving a standard over-the-air transmission." Id., ¶ 31. In other words, PrimeTime 24 explicitly endorses the point I make in ¶ 6(c) above, that consumers can use PrimeTime 24 to avoid making expenditures to receive local network stations.

9. In short, PrimeTime 24 has expressly acknowledged that its service is an attractive alternative source of network programming for viewers who already have access to network programming from their local stations. Indeed, PrimeTime 24 expressly acknowledges that satellite delivery of network stations "has the potential to render obsolete the structure of the television broadcast industry characterized by a few national networks each delivering programming . . . through a single local station in each locality."[3/] It is not possible to square the claims of PrimeTime 24's experts that its service poses no threat to local network stations with PrimeTime 24's own statements that it can render the current network/affiliate system "obsolete."

The Impact of Delivery of PrimeTime 24 to
Ineligible Subscribers on Nielsen Ratings of Local Network Stations

10. Both Mr. Springer and Dr. Dertouzos contend that PrimeTime 24's millions of subscribers, many in urban and suburban areas close to their local television stations, have no impact on the Nielsen ratings of local stations. That contention is inconsistent both with common sense and with the pertinent Nielsen data.

11. Television audiences and advertising sales. The principal business of network television stations is the sale of advertising time. Advertisers buy television spots on the basis of rating points (or "gross impressions," which translates ratings into absolute numbers of viewers). The higher the ratings a program delivers, the more a television station can charge for spots in or adjacent to that program. At any given time, therefore, a television station with a lower rating can expect to receive less advertising revenue than if it had higher ratings.

3/ PrimeTime 24 Complaint, ¶ 28 (emphasis added).

12. The data that PrimeTime 24 has provided in discovery state that PrimeTime 24's subscribers accounted for of U.S. television households in November 1997. Promotional materials distributed by PrimeTime 24's advertising sales agency in early 1998 claim that PrimeTime 24's subscribers, taken as a whole, constitute "the 5th largest TV market" in the United States, a market "larger than San Francisco."

13. PrimeTime 24's data indicate that its penetration in individual Designated Market Areas ("DMAs") is often much higher than [REDACTED] in Missoula, Montana, for example, PrimeTime 24's subscribers account for approximately [REDACTED] of all television households. PrimeTime 24's average penetration per DMA, across the 211 DMAs in the United States, was in November 1997, according to data PrimeTime 24 has provided in discovery. The [REDACTED] average penetration per DMA is significantly higher than the national average of across all U.S. television households, because PrimeTime 24's penetration is generally higher in smaller markets than in big cities.

14. The source of ratings data used by both advertisers and local stations for purposes of pricing television spots is Nielsen. The ratings data Nielsen provides for local stations are generated by monitoring a sample of television households in each DMA. Nielsen attempts to make its samples representative of the universe of television households as a whole. For example, during a recent ratings period, Nielsen extrapolated from a sample of 246 households in the Missoula, Montana DMA to calculate the audience ratings and shares for stations in that DMA.

15. Because Nielsen attempts to make its samples representative of the overall television household population, one can expect that its samples will include PrimeTime 24's subscribers in numbers roughly proportional to its penetration of television households. Accordingly, using Missoula again as an example, if PrimeTime 24's share of television households in the DMA is I would expect roughly of the 246 households in the Missoula DMA Nielsen sample, or 32 households, to be PrimeTime 24 subscribers. If these Nielsen households are viewing PrimeTime 24 when they would otherwise be watching their local network stations, that fact will have a direct impact on the ratings of the local network stations. That is, the viewing of these households will be "projected" by Nielsen when it estimates the viewing behavior of television households in the market as a whole.

REDACTED 16.

4/

REDACTED

17. Even in the absence of detailed data -- which I discuss below -- it is highly likely that PrimeTime 24 is having a damaging impact on the ratings of a significant number of network television stations. As discussed above, PrimeTime 24 itself recognizes that its service is an attractive alternative for viewers who already have access to their local stations, and actively markets it on that basis. In addition, I understand from reviewing the Expert Report of Jules Cohen that PrimeTime 24 signs up large numbers of subscribers in urban and suburban areas in which the signals of local stations are readily available over the air.[5/] (I can attest from my own knowledge that most urban and suburban households also have access to local network stations by cable.) It stands to reason, therefore, that PrimeTime 24 will siphon viewership away from local network stations, both among DMA television households overall and in the sample of DMA television households selected by Nielsen, with resulting harm to station advertising revenues. If PrimeTime 24 continues to expand its subscriber base, its harmful impact on local stations is likely to become still greater.

18. The ratings lost to PrimeTime 24 need not be large to have a measurable (and in some cases large) impact on revenues of the local network station. Consider, for example, a station that would have a prime time rating of 9.6 in its DMA in the absence of

---

5/ Based on a review of the locations of PrimeTime 24 subscribers in the Denver area, where I have resided for many years, I can confirm, based on my own real-life experience, the correctness of Mr. Cohen's conclusions.

PrimeTime 24, but that has a 9.4 rating because of diversion of audiences to PrimeTime 24. (A 9.6 rating means that 9.6% of the TV households in that DMA were tuned to that station during the relevant daypart.) The following consequences flow from this hypothetical:

a. In selling commercial time to those advertisers who purchase commercial time based on rounded whole numbers (such as local businesses who may purchase advertising time using the station's own rating book), the impact of the .2 ratings loss to PrimeTime 24 is a 10% reduction in the station's prime time rating (from 9.6, rounded up to 10, to 9.4, rounded down to 9).

b. In the more common case of selling commercial time to advertisers who purchase commercial time based on tenths of a rating point (such as advertisers who purchase local advertising time in the national spot market), the impact of a .2 ratings loss to PrimeTime 24 is a 2.1% reduction in ratings and, in all likelihood, in advertising revenue.

19. Mr. Springer's analysis of the supposed impact of PrimeTime 24 on local station ratings -- which is based entirely on his review of national-level data -- is fatally flawed. What is relevant to a particular local station is not PrimeTime 24's national viewership but its impact in the station's local market. It is simply not possible to draw any conclusions about PrimeTime 24's impact on individual stations based on the national-level data on which Mr. Springer relies. (Even with regard to national ratings, I should note that promotional materials for PrimeTime state, contrary to Mr. Springer's assertion, that PrimeTime 24 enjoys "high prime time viewing levels.")

20. Specific Nielsen data showing injury. Although Mr. Springer is apparently very familiar with Nielsen data, he does not mention the existence of highly relevant Nielsen data that disprove his hypothesis.[6] Specifically, Nielsen publishes a study called the "DMA Total Activity Report" after each sweeps period, which contains ratings both for "inside" network stations and for "outside" network stations, including stations delivered by PrimeTime 24.

21. The DMA Total Activity Reports contain powerful evidence of the impact of PrimeTime 24 on local station ratings. I have analyzed CBS ratings data from these Reports for two time periods: February 1994 (when PrimeTime 24 had a much smaller subscriber base, before the "small dish revolution") and February 1998.[7] These data show the following:

---

[6] I am aware that Nielsen has protested PrimeTime 24's use of Nielsen data without Nielsen's permission. Since Mr. Springer and Dr. Dertouzos have relied heavily on Nielsen data in their reports, however, it is essential to be able to cite to Nielsen data to rebut their contentions.

I understand that Nielsen does not object to use of its data in litigation provided that the parties agree not to challenge the data's accuracy. I do not plan to challenge the accuracy of any of the Nielsen data presented by Mr. Springer or Dr. Dertouzos, and I understand that plaintiffs have agreed to respect Nielsen's desire not to provide witnesses or documents through the discovery process. I expect and assume that PrimeTime 24's experts -- who were the ones to introduce Nielsen data in this case -- will not challenge the accuracy of the data they themselves have relied on. If (to my surprise) PrimeTime 24's experts challenge the accuracy of Nielsen data, I will take whatever steps are necessary to ensure that Nielsen's interests are properly protected.

[7] I have not counted ratings data when it is unclear whether the source of the ratings is viewing of the station in question on PrimeTime 24 as opposed to local viewing over-the-air or by cable. Most obviously, I have not counted ratings data in the home markets of WRAL in February 1994 (when it was carried by PrimeTime 24), or of WSEE or KPIX in February 1998 (when they were carried by PrimeTime 24). For the same reason, I have also not counted ratings (continued...)

- In February 1994, the average prime time rating per DMA for the one CBS station then delivered by PrimeTime 24 was .1. By February 1998, the average prime time rating per DMA for CBS stations delivered by PrimeTime 24 (WSEE and KPIX) had **quadrupled** to .4.

- The CBS stations delivered by PrimeTime 24 (WSEE and KPIX) had measurable viewing in 169 DMAs (or about 80% of all DMAs in the United States) during the February 1998 sweeps period. The fact that PrimeTime 24 achieved measurable ratings in each of these 169 DMAs is itself a significant fact: it is not uncommon for local television stations (usually specialized independent stations) to have no measurable ratings in their own local market. Yet these stations are able to sell advertising and are a factor in the local marketplace.

- In February 1994, taking the average of all DMAs that had an "inside" CBS station, the imported PrimeTime 24 CBS station (WRAL) had a rating 0.4% the size of the rating of the local CBS station. By February 1998, taking the average of all DMAs that had an "inside" CBS station, the imported PrimeTime 24 CBS stations (WSEE and KPIX) had a rating **2.3%** the size of the rating of the local CBS station -- **a nearly sixfold increase from 1994**. The magnitude of this increase reflects both the sharp increase in PrimeTime 24 ratings (from .1 to .4 in markets with inside CBS stations) and the substantial decline in average ratings of inside CBS stations (from 23.5 in 1994 to 15.7 in 1998).

7/ (...continued)
in adjoining markets in which these same stations appear to have substantial local viewing during the relevant period.

- In 113 DMAs, the imported PrimeTime 24 CBS stations had a rating during the February 1998 sweeps at least 1.0% the size of the local CBS station's rating.

- In 53 DMAs, the imported PrimeTime 24 CBS stations had a rating during the February 1998 sweeps at least 3.0% the size of the local CBS station's rating.

- In 22 DMAs, the imported PrimeTime 24 CBS stations had a rating during the February 1998 sweeps at least 5.0% the size of the local CBS station's rating.

- In 10 DMAs, the imported PrimeTime 24 CBS stations had a rating during the February 1998 sweeps at least 7.0% the size of the local CBS station's rating.

- In Missoula, Montana, the imported PrimeTime 24 CBS stations had a rating during the February 1998 sweeps **12.2%** the size of the local CBS station's rating.

These statistics provide dramatic evidence of the substantial and growing impact of PrimeTime 24 on local station ratings.

22. The statistics just cited, however, capture only a part of the damage that PrimeTime 24 does to local stations by selling to ineligible subscribers. Advertisers buy television spots based in substantial part not merely on the stations' overall ratings but on their ratings in key demographic groups. The audience demographics most in demand and highly valued by advertisers are adults 18-49 and 25-54 and men 18-34. Promotional materials about PrimeTime 24 for advertisers state that in prime time it delivers exceptionally high numbers of

viewers in these categories, thereby siphoning off some of the viewers that are most prized by advertisers and hence most valuable to a station.

23. Moreover, satellite households tend to be affluent and technology-oriented, making them exceptionally attractive to advertisers. Both in terms of age and affluence, therefore, PrimeTime 24 is "skimming the cream" by attracting viewers that advertisers view as highly desirable.

24. To the extent PrimeTime 24's broadcasts result in decreased ratings for local network affiliates, they also increase the attractiveness to advertisers of other local media outlets like cable systems and independent stations by reducing the ratings gap between the programming offered by those alternatives and that carried by local network affiliates. This outcome is likely to lead to a further reduction in the advertising revenues earned by local affiliates.

The Impact of PrimeTime 24 on the Networks

25. With respect to the networks whose programming PrimeTime 24 carries, Mr. Springer concludes that the only effect of the service is positive, since the audience it delivers is likely to be included with the networks' national ratings and therefore may increase the value of their spots to national advertisers. There are at least three fundamental problems with this conclusion. First, it is simply not credible that the hundreds of thousands of urban and suburban subscribers that PrimeTime 24 has signed up -- to whom network programming is obviously quite valuable -- could not use cable or over-the-air antennas to obtain access to the

Super Bowl, the World Series, the Academy Awards, and other network programming before they became PrimeTime 24 subscribers. Second, the claim that PrimeTime 24 has significantly expanded the universe of households able to view network programming is contradicted by data from the Nielsen Television Index showing that CBS network programming (for example) has been available in more than 99% of all U.S. television homes for many years. PrimeTime 24 thus has not resulted in any appreciable increase in the availability of network programming to U.S. television households.

Third, Mr. Springer's analysis ignores the value to the networks of affiliations with local stations. A program's ratings are profoundly influenced by the strength of the programs that precede and follow it. A strong local station with a popular news program just before the network's nightly newscast, for example, can significantly improve the ratings for the network newscast. (The same is true in reverse: a strong network program at the end of prime time leads viewers into their local network station's late news program.) By diverting network viewers from local affiliates, PrimeTime 24 deprives the networks of local stations' assistance in maximizing the audience flow for their programming. And because networks want to be affiliated with strong local stations, PrimeTime 24 harms networks by weakening the local stations with which the networks are in partnership.

Dr. Dertouzos' Analysis

26. In his Expert Report, Dr. Dertouzos describes the results he obtained from doing an extremely simple econometrics analysis based on the ratings of local network stations

in two time periods (November 1996 and July 1997) and on the increase in PrimeTime 24 penetration during a different time period (December 1996 to November 1997). Dr. Dertouzos concludes from this analysis that "PrimeTime 24 has had no measurable adverse economic effects on network affiliates." Dertouzos Report at 3.

27. I have often reviewed or participated in the creation of econometrics analyses such as that conducted by Dr. Dertouzos. Based on that experience, and on the other information presented above, it is clear to me that Dr. Dertouzos' analysis is wrong. I first describe a variety of technical flaws in Dr. Dertouzos' analysis, and then discuss the Nielsen data summarized above, which vividly show the harm that PrimeTime 24 does to local stations and make econometric analysis unnecessary.

28. In looking for the effect of PrimeTime 24 on the ratings of local network stations from November 1996 to July 1997, Dr. Dertouzos is searching for an effect in an extremely "noisy" environment, without taking the steps that would be necessary to eliminate the noise. To mention just the most obvious example, television viewing in general and viewing of network stations in particular is radically different in November and July. November is a time of high household viewing levels and a great deal of first-run network programming; July is a time of low household viewing levels and a large amount of rerun network programming. In addition, local televised baseball games are available on competing channels in some (but not all) markets, and attract different ratings levels in different markets. These and other factors mean that network station viewing is likely to be much lower (but lower by different amounts in different DMAs) in July than in November -- even in the absence of PrimeTime 24. Dr.

Dertouzos' comparison of November ratings with July ratings thus creates a high level of noise that makes it difficult to assess the impact of PrimeTime 24.[8/]

29. To perform a meaningful econometrics analysis, one must ensure that the key explanatory variables have been included in the equation. Dr. Dertouzos has omitted many variables that could have a large impact on his analysis. To mention only a few examples:

a. Other satellite carriers engaging in parallel conduct. Two other satellite carriers, Primestar and Netlink, also deliver network stations by satellite to dish owners, and are likely to harm local stations in the same way that PrimeTime 24 harms them. To conduct an appropriate econometrics analysis, one would need to include variables reflecting detailed information about the impact of these services, such as data about the penetration (by DMA) of Primestar and Netlink.

b. Cable penetration. When viewers switch from over-the-air viewing to cable, they usually receive far more channels and viewing options, and usually spend more of their viewing time on nonbroadcast channels. For that reason, changes in cable penetration in a particular DMA are likely to have a significant impact on local network station ratings. An adequate econometrics analysis would therefore need to take cable penetration by DMA into account. It would also be highly desirable to control for the attractiveness of the

---

[8/] Dr. Dertouzos' choice of time periods for his two variables is also difficult to understand. Because of a mismatch in time periods, Dr. Dertouzos is testing for effects in the July 1997 ratings of hundreds of thousands of PrimeTime 24 subscribers who did not subscribe to PrimeTime 24 until after that rating period.

offerings of each cable system, including the number and quality of channels and the technical character (analog vs. digital) of the delivery mechanism.

c. Satellite penetration. As with cable, viewers who subscribe to satellite have a large array of viewing choices -- in some cases, a much larger array than the typical cable subscriber. Viewers who switch to satellite are likely to watch less local network station programming for that reason, which is distinct from the reduced viewing of local network stations caused by the availability of out-of-town network stations (for the subset of satellite customers who subscribe to out-of-town network stations). A genuine econometrics analysis would therefore need to take into account increases in satellite penetration by DMA.

d. Ratings for nonbroadcast channels. Beyond their general availability to cable and satellite households, the actual viewing of nonbroadcast channels has a significant effect on the ratings of local network stations. Over the past 15 years, network stations have experienced steady losses of viewers to nonbroadcast channels such as ESPN, Nickelodeon, USA Network, and HBO. These losses are likely to vary in size from one DMA to another. Again, a serious econometrics analysis would need to take these factors into account.

30. For all of these reasons, Dr. Dertouzos' analysis cannot possibly be used to conclude that PrimeTime 24 does not have a harmful economic impact on local stations.[2/] Nor does it make sense to engage in a complicated econometrics analysis to try to find that effect. As

---

2/ Stations also suffer harm to their goodwill when viewers become angry at the stations for "taking away" an unlawful service to which the viewers have become accustomed. I understand that local broadcasters will provide testimony on this issue.

discussed above, readily available Nielsen data show that PrimeTime 24 is having a substantial harmful effect on local affiliates.

31. Consider the following facts: in February 1994, when PrimeTime 24 was effectively only a large-dish ("C-band") service, with far fewer subscribers than today, it showed no measurable viewing for PrimeTime 24-imported CBS programming in Missoula. In February 1998, after PrimeTime 24 had signed up thousands and thousands of new small-dish subscribers in the Missoula DMA, PrimeTime 24's subscribers amounted to 12.4% of all television households in that DMA, and the prime time ratings in that DMA for CBS signals imported by PrimeTime 24 amounted to **12.2% of the viewing of the local CBS station**. Since the data collected by Jules Cohen shows that the great majority of PrimeTime 24's subscribers in Missoula (as in other markets) are ineligible, and since PrimeTime 24 actively markets its service as an alternative for viewers who already have access to their local network stations, it defies common sense to suggest that PrimeTime 24 is not having a harmful effect on the CBS station in Missoula. For the same reasons, the Nielsen data discussed above show that PrimeTime 24 is indeed having a harmful effect on many other network stations around the country, which is likely to grow still larger if PrimeTime 24 continues to expand its subscriber base.

May 28, 1998

Paul Bortz

Bortz Media & Sports Group

TOWER ONE, SUITE 1425

1515 ARAPAHOE STREET

DENVER, CO 80202

303.893.9902

303.893.9913 FAX

info@bortz.com

PAUL I. BORTZ

Paul Bortz is President, Bortz Media & Sports Group, Inc. Consultants to broadcasting, cable television and professional sports organizations, the company advises clients on new business planning, financial and market analysis, acquisitions, and strategic planning.

ABC, CBS, Landmark Communications and Television Operators Caucus are among broadcast clients. ESPN, Arts & Entertainment, Disney Channel and cable operators TCI, Cox and Comcast are among clients in the cable area. Media and sports clients include at the league level, the NBA and the NHL, and at the local level, a number of basketball, hockey and baseball franchises.

Company assignments have included:

- Financial evaluation of broadcast television, radio and cable properties.
- Valuation and negotiation of sports cable and broadcast television contracts, including analysis of local television advertising markets.
- Strategic planning for television broadcasters, cable networks and cable system operators.
- Analysis of domestic cable programming opportunities, including developing business plans for cable networks.
- Survey research, statistical analyses and economic modeling for broadcast, cable and professional sports clients.
- Assessment of business opportunities in telecommunications arising from new technologies, including most recently digital television and Internet related technologies.

Bortz has testified as an expert witness for:

- Joint Sports Claimants (Copyright Royalty Tribunal/Copyright Arbitration Royalty Panel)
- City of St. Paul/Continental Cablevision
- Indiana Pacers
- Sacramento Kings
- Texas Rangers
- National Basketball Association
- United Artists Cable/Telecommunications, Inc.
- United International Holdings

He has also testified (both as an expert and as Deputy Assistant Secretary of Commerce) in front of House and Senate communications subcommittees on television policy matters and in front of other House and Senate subcommittees on budget and communications intelligence matters.

Bortz has been featured in articles in Electronic Media, Forbes, Broadcasting, CableVision, and Denver Business magazines. He is a member of the National Association of Business Economists, and the Institute for Electrical and Electronics Engineers (IEEE).

Most reports are proprietary. However, certain relevant publications generally available include:

Great Expectations: A Television Manager's Guide to the Future, National Association of Broadcasters, 1986.

Sports on Television: A New Ball Game for Broadcasters, National Association of Broadcasters, 1990.

Impact '90, A Report of Cable Television's Impact on the U.S. Economy, Daniels & Associates, January 1990.

Competing in an Expanding Multichannel Environment, Strategies for Television Broadcasters, Television Operators Caucus, May 1994.

Public Television in the Information Age, Association of America's Public TV Stations, July 1994.

Prior Experience:

1979 to July 1988 ... Managing Director, Browne, Bortz & Coddington, Inc. ... management of a diversified market and economic consulting firm, including overall direction of its broadcast, cable and professional sports activities.

1978 to 1979 ... Deputy Assistant Secretary of Commerce for Communications and Information ... administered the Executive Branch Agency responsible for developing domestic and international communications policy.

1969 to 1978 ... Industrial Economics Division, University of Denver's Research Institute ... head of the division from 1974 to 1978 ... variety of applied economic research projects including telecommunications, technology innovation, business planning.

1961 to 1969 ... Ford Aerospace and Communications Corporation in California ... program engineer on advanced missile systems.

Education:

B.S., Aeronautical Engineering, Purdue University
M.A., Applied Mathematics, Harvard University

By Bob Shaw

Customers Get Local Channels Free with Every DSS

Built-in DSS local channel compatibility is your opportunity to increase customer satisfaction (and sales).

Does the following sound familiar? A customer (probably the most recent one you spoke with) says, "How do I continue to get my local TV stations if I buy a DSS?" The fact is, local compatibility is still a source of confusion and concern for most consumers. Of course, you know that all they have to do is plug a modern antenna in the connection on the back of every DSS receiver, then simply push a button that's on every DSS remote control to switch between DSS channels and local channels. And, of course, you've explained this easy built-in feature to customers time and time again. Many times you see them nod with understanding, but you can see in their eyes that they're skeptical. Here's why and how to overcome it.

ANTENNA PHOBIA!

First, understand that the customer you were talking to probably has been a cable TV subscriber for a long time. And there's a good possibility that the last time they watched TV from an antenna was back when Jimmy Carter was president. Or worse, it was using the rabbit ears that came with the TV set. Needless to say, it's understandable that they'd be skeptical about going back to an old antenna for local channel reception.

THAT WAS THEN. THIS IS NOW.

What consumers don't understand is that antenna technology has improved dramatically over the years and TV stations signals are stronger than ever. Today's antennas (you probably sell them in your store) are capable of bringing in a high quality signal for just about every urban or suburban homeowner. And it will almost always be a clearer, more stable, and more reliable signal than cable TV! This positive DSS selling point provides you with yet another opportunity to maximize customer satisfaction!

POWERFUL CHOICES.

Modern set-top antennas are a great choice for city dwellers. Many have built-in signal amplifiers and filters to capture a great signal. Others are even tunable to optimize reception. If the customer doesn't want anything on top of the TV, a state-of-the-art external antenna can be neatly hidden inside the attic or mounted atop the roof. A word of caution: antennas that use the house wiring should be avoided due to problems with interference and overall poor performance. Of course, there will be a few customers who, because of unusual circumstances or distance, simply cannot use an antenna. For these rare instances, obtaining local stations via "lifeline" cable service is appropriate. But, again, most customers can get better-than-cable local station reception with an antenna...and with an antenna they get local channels free! Remember Free TV?

DSS, THE ANTENNA, AND EVERYTHING IN BETWEEN.

A clear-as-a-bell local TV signal also depends on more than the antenna. The lead-in should always be a quality coaxial cable, not the old-style flat-wire lead. The antenna must be securely mounted (if external) and the lead-in should be properly installed with readily-available brackets so it doesn't flop around in the wind (a common cause of ghosts and jitters). Inside walls, the antenna lead should be kept away from electrical wires to avoid picking up interference.

MAKE LOCAL TV YOUR OPPORTUNITY!

First and foremost, explain the easy way DSS owners can get their local channels with an antenna and a push of the remote button. Be sure to go in-depth with them about how much better antennas are today to make sure they clearly understand that local station reception quality is not an issue, but an opportunity with DSS! By doing so, you've eliminated any risk for the consumer while creating a sales and satisfaction opportunity for yourself.

Tell them that with an antenna, all their favorite local stations are free...there's no need to keep (or pay for) cable. To help, create a simple flyer or poster, paste on the logos of your local stations and above it write, "With DSS, all these channels are free!" Plus, make up stickers that say the same thing and place them on TV tubes and DSS dishes on display.

By solving the local TV compatibility question in your customer's mind, you'll not only increase DSS sales, you'll open up new opportunities to sell antennas! And by helping customers get the best possible local TV signal free, they're bound to give you a great reception! ■

D